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INTRODUCTION

Health is a common theme in most cultures, infact all the communities have their own concept of health, as part of their culture. Every culture in the world have developed a system of medicine, and history of their medicine is one aspect of the history of culture. **World Health Organization** defined health as

"Health is a state of complete physical , mental and social well being and not merely an absence of Disease (or) infirmity"

The term disease – literally means " without ease" (easiness)

Disease - The opposite of ease, when something wrong with bodily function. For long, man was in darkness about the causation of disease, several theories were advanced from time to time to explain disease causation.

The concept of the disease causing factors were in vague

Primitive man	-	The super natural theory of disease
Indians	-	The theory of " Trihumors"
Greeks	-	The theory of "Four humours"
In 18^{th} century	-	The theory of spontaneous generation

In 19th century - Microbial (Germ theory of disease)

Now going on - "Multi factorial" theory of disease (Social, economical, cultural, genetic, and psychological which are equally important)

The medical system that are truly Indian in orgin and development are the two pillars of Indian system of medicine. The one is **Siddha** and the another one is **Ayurvedha**

Siddha – means - wisdom

Ayurvedha – means - ayul + vedha "Knowledge of Life"

Both are same concept, but siddha and its orgin is traced for back to the vedic times about 5000B.C

Hippocratus – Great physician in Greek medicine (460 – 370BC) who is often called " Father of modern medicine"

He says the concept of the health and disease stressed the relations between man and his environment. The Greek believed that, the matters was made up of four elements

“Earth – air – fire – water” - concept strongly similar with the five elements theory of siddha

“ பாரப்பா பூதமைந்து மண்நீர் தேயு
பரிவாயு வாகாய மைந்தினிலே
சேரப்பா சடமாச்சு.....”

- சதகநாடி

In siddha system the diseases are classified broadly as 4448 disease by siddhars, based on the **“ Thridhosic theory”**

SIDDHA PHYSIOLOGY

Human Physiology is the science which explains the physical and chemical factors that are responsible for the origin, development and progression of life.

The siddha criteria explains the mechanisms of the human body on the basis of 96 thathuvas

These 96 basic principles are the structural units of the body. Apart from these, the body rely on

7 physical constiuents	-	Udal kattukkal
6 tastes	-	Suvaigal
14 Reflexes	-	Vegangal
3 Immunities	-	Udal Vanmai
4 Body fires	-	Udal thee

The Ninety Six Basic Principles are as follows

1. Bhootham (Elements)	-	5
2. Pori (organs)	-	5
3. Pulan (senses)	-	5
4. Kanmenthriyam (organs of perception)	-	5

5. Kanmenthriya vidayam

(organs of action) - 5

6. Karanam (Intellectual power) - 4

7. Arivu (intellect/wisdom) - 1

8. Naadi (Channels) - 10

9. Vayu (vital Airs) - 10

10. Asayam (Visual cavities) - 5

11. Kosam (Vestures of the soul) - 5

12. Adharam (stations of soul) - 6

13. Mandalam (Regions) - 3

14. Malam (Principles of Moral Evil) - 3

15. Dhosham (Humours) - 3

16. Edanai (Physical Bindings) - 3

17. Gunam (cosmic qualities) - 3

18. Vinai (Deeds) - 2

19. Raagam (Predominent passions) - 8

20 Avathai (States of soul - 5

Bhootham – 5

Ether, Air, Fire, Water,Earth

"நிலந்தீ நீர்வளி விசும்போ டைந்தும்

கலந்த மயக்கம் உலகம் ஆதலின்

இருதிணை ஐம்பால் இயனெறி வழாஅமைத்

திரிவில் சொல்லொடு தழாஅல் வேண்டும்”

- The Earth is the first element. It determines the shape of the body and nourish it through food
- The water is the second element . It keeps the body cool and prevents it from excessive heat. It plays an important role in the process of metabolism.
- Fire is the third element, it is the major factor for the digestion of food and it determines the spiritual activities of the body and the soul.
- Air is the fourth element. it stabilises the body through the process of respiration
- Ether is the fifth element. it gives the life force to the organisms.

Pori-5:

Mei, Vaai, Kann, Mooku, Sevi.

Pulan-5:

Saptham, Sparisam,Roopam,Rasam, Gantham.

Kanmenthiriyam-5:

Mei,Vaai, Kaan, Kai, Eruvaai, Karuvaai.

Gnanenthiriyam-5:

Vasanam, Kamanam, Dhaanam, Visarkam,Aanatham.

Anthakaranam-4:

Manam,Buthi,Sitham, Agankaram**.**

Arivu-1:

Nadi-10:

Idakalai, Pinkalai, Suzhumunai, Siguvai, Purudan, Gaandhari, Athi, Alambadai, Sangini, Gugu.

Vayu-10:

Praanan, Abaanan, Viyannan, Uthanan, Samaanan, Naagan, Koorman, Kirugaran, Thaevathathen, Dhananjeyan.

Aasayam-5:

Amaravaasayam, Pagirvaasayam, Salavaasayam, Malavaasayam, Sukilavaasayam.

Kosam – 5

Annamayakosam, Praanamayakosam, Manomayakosam, Vingnamayakosam, Anandhamayakosam.

Aathaaram-6:

Moolaatharam, Swaathitanam, Manipooragam,Anaagatham, Visuthi, Aakinai.

Malam-3 :

Aanavam, Kanmam, Maayai.

Mandalam-3:

Gnayiru, Thingal, Agni**.**

Thodam-3:

Vatham, pitham, Kabam**.**

Vatham - 10

Pitham - 5

Anarpitham, Ranjaga pitham, Sathagapitham, Alosaga pitham, Prasaga pitham.

Kabam -5

Avalambagam, Kiledhagam, Pothagam, Tharpagam, Sandhigam.

Eedanai-3:

Porulpatru, Pudhalvarpatru, Ulagapatru.

Gunam-3

Sathuvam,Raasadham, Thaamasam.

Vinai-2:

Nalvinai,Theevinai.

Raagam-8:

Kaamam, Krutham, Ulobam, Moham, Madham, Marchariyam, Idumbai, Agankaaram.

Avathai-5:

Nanavu, Kanavu, Urakkam, Paerurakkam, Uyirpadakkam.

Udal Kattugal:

The human body is built up by the 7 Udal Thathukkal.

Saaram, Senneer, Oon, Enbu, Moolai, Kozhuppu,

Sukkilam / Sronitham.

As the digestion takes place in the body, Rasam(Saram) is formed on the very first day and all other thathus are formed one by one and end on 7th day.

Vegangal:

These are natural reflexes conditioned and unconditioned of the human body.

Vadham, Thummal, Siruneer, Malam, Kottaavi, Pasi, Neervetkai, Kasam, Ilaippu, Nithirai, Vaanthi, Kanneer, Sukkilam, Swasam, Kanneer.

Tears:

The tears is secreted by lacrimal gland to keep the eyes in moisturing state and protect from foreign bodies.

Suvaigal:

"மண்ணுடனே புனல் தீக்கால் முறையாக

சேர்ந்திட்டால் வருமேயினிப்பு

திண்ணமிலம் துவர்ப்பிரசம் சதாகதியோடார்

தீயின் திடமா முறைப்பும்.

எண்ணரிய கசப்புண்டாம் தண்ணீரில் கனலிணைப்பால்

ஏழமா முவர்ப்பும்

உண்ணிய அறுசுவையின் பிறப்பிதெனும் குருசித்தர்

உரைத்த மறையே"

The Sense of taste explained here is six types.

They are:

Inippu, Pulippu, Uvarppu, Kaarppu, Kaippu, Thuvarppu.

Udal Vanmai:

Iyarkai Vanmai, Seyarkai Vanmai and Kaala vanmai.

Iyarkai Vanmai:

It is considered with 3 Gunangal (Sathuva, Raso, Thamo)

It denotes the natural immunity or stamina of the body at birth.

Seyarkai Vanmai:

Improving the health condition by nutritious diet and medicines.

Kala Vanmai:

Development of immunity and stamina according to the age and environment.

Body Fires:

Samanakini, Mandhaakini, Dheekshanaakini, Vishamaakini.

Body Constitution:

Vadha deghi, Pitha deghi, Kaba deghi.

There are physiological aspects explained by the siddhars. Alter in physiology results in pathology.

SIDDHA PATHOLOGY

The changes of the three **humours** are called **Mukkuttram**. **The alteration in Mukkuttram is the basic principle of all diseases.**

The changes in the Uyir thathu (mukkuttrams)caused by

1. Variations in the intake of diet
2. Alteration in the Udal kattukkal
3. Environmental changes
    a. Seasonal variations of humours
    b. Regional variation of humours
4. Self suppression of fourteen vegams
5. In appropriate physical activities.

When the 1: ½ : ¼ normal Mathirai proportion of the uyirthathus are disturbed, it leads to mukkuttram diseased condition.

"மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளிமுதலாய் எண்ணிய மூன்று"

- திருக்குறள்

The three humours changed and causes disease by self exaggeration and combining with other humour.

And thus the diseases are classified under 9 major groups of **Naadi Nadai**

1. Vatha Naadi (Self exaggeration of vatham)
2. Vatha Pitham
3. Vatha Kabham
4. Pitha Naadi (Self exaggeration of pitham)
5. Pitha Kabham
6. Pitha Vatham
7. Kabha Naadi (Self exaggeration of kabam)
8. Kabha Vatham
9. Kabha Pitham

The Thannilai Valarchi and Vettrunilai Valarchi of the three humours causes the symptoms of increasing and decreasing properties of Uyirthathus.

Humour	**Increased**	**Decreased**
Vatham	Wasting, Blackish	Body pain, Feeble

	discoloration, Affinity on hot food, Tremors, Distended Abdomen, Constipation, Weakness, Insomnia, Weakness in Sense organs, Giddiness, Brisklessness.	voice, diminished capability of the brain, Decreased intellectual quotient, syncope, increased kabha condition
Pitham	Yellowish discoloration of conjunctiva, skin, urine and faeces, polyphagia, polydypsia, burning sensation all over the body, Decreased sleep	Loss of appetite, cold , pallor, features of increased kabham
Kabham	Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold , decreased physical constituents, dyspnoea,	Giddiness, dryness of the joints and prominence of bones. Profuse sweating in the hair follicles.

	flatulence, cough, excessive sleep	

Vizhi - If pitha humour is increased yellowish discolouration of conjunctiva occurs

1. Variations in the intake of Diet

Any material that provides the nutritive requirements to maintain growth and physical well being is called as food. Food containing six taste is to be taken by normal individuals

In any alteration in the normal, regular diet will produce changes in the propotion of the uyirthathukkal, resulting in diseases. The following poem explains how humours are altered by the taste

"புளிதுவர்விஞ் சுங்கறியாற் பூரிக்கும் வாதம்
ஒளியுவர்கைப் பேறில் பித்துச் சீறும் கிளி மொழியே
கார்ப்பினிப்பு விஞ்சிற் கபம் விஞ்சுஞ் சட்டிரதச்
சேரப்புணர் நோயணுகாதே"

- Sour (Pulippu) , Astringent (Thuvarppu) - increases vatham
- Salt (uppu) , Bitter (Kaippu) - increases pitham
- Pungent (Kasapu) , Sweet (Inippu) - increases Kabham

2. Alterations in the Udal Kattukkal

When the three humours of the human body are affected by various factors they immediately change the nature of physical constituents

Udal kattukkal increased (or) decreased to produce a disease

	Udal Kattukkal	Increased features	Decreased features
1.	Saaram (Chyle)	Loss of appetite, excessive salivation, diminished activity, heaviness, pallor, cold, decreased constituents, dyspnoea, flatulence, cough, excessive sleep.	Dryness of skin tiredness, Loss of weight, lassitude, Less ability in hearing.
2.	Senneer (Blood)	Boils in different parts of the body, Spleenomegaly, tumours, pricking pain, Loss of appetite, haematuria, hypertension, reddish eye and skin, Leprosy, jaunidce	Affinity to sour and cold food, Nervous debility, dryness, pallor.

3.	Oon (Muscle)	Tuberculous adenitis, Venereal diseases, extra growth around the neck , cheeks, abdomen, thigh, genitalia	lethangic sense organs, Pain in the joints, muscle wasting in chin, gluteal region, penis, thigh
4.	Kozhuppu (Fat)	Identical feature of increased Oon, tiredness, dyspnoea on exertion, extra musculature in genitial region, external gentalia, chest, abdomen, thighs.	loin pain, spleenomegaly, emaciation.
5.	Enbu (Bone)	excessive ossification and dentition	Joint pain, falling of teeth, falling and splitting of hair and nails.
6.	Moolai (Bone marrow)	increased sexual activity, urinary calculi.	Dripping of semen, vaginal fluid/ blood during coitus, pricking

			pain in the scrotum, inflammed and external genitallia.

Author is dealing about eye disease, the affected udal kattukkal are

(i) Senneer - Reddish eye

(ii) Moolai - Heaviness of eye

Blurred vision

3. Environmental Changes:

The environmental changes consists of two factors

(a) Seasonal changes of humours

(b) Regional changes of humours

(a) Seasonal change of humours

Humours	↑	↑↑	→
Vatham Pitham Kapham	Mudhuvenil Kaar Kaar Kalam Pinpani Kalam	Kaar kalam Koodhir Kalam Elavenil Kalam	Koodhir Kalam Munpani Kalam Mudhuvenil Kalam

↑ - Thannilai Valarchi

↑↑ - Vetru Nilai Valarchi

⟶ - Thannilai Adaiithal

(b) Regional Changes of Humours

1. Kurinji – Kapham resides there, abdominal Humours, Malarial fever may occur
2. Mullai – Pitha disease and predominant and vatha diseases also occur
3. Neydhal – Vadha disease with elephantiasis and inquinal hernia will occur.
4. Pallai – All these humours are disturbed and a lot of disease will occur.

Effects of Self suppression of Fourteen Vegams:

Reflexes are essential for normal physiology. When there is any self suppression to those reflexes that will lead to pathological state.

S.No	Vegams	Diseases
1.	Vatham	Heart disease, gastritis, umbilical hernia, body pain, liver disorder, constipation, oliguria, loss of appetite.
2.	Thummal	Head ache, Defect of the special sensory organs and it activities, pain over the face, hipjoint pain.
3.	Siruneer	Anuria, Urethral ulcer, Pain in the joints, Pain in the penis, gas formation in the abdomen.
4.	Malam	Diarrhoea caused by increased abanan, knee pain, head ache, flatulence, weakness and it leads to many

		disease.
5.	Kottavi	Lethargic face, exhaustion, indigestion, urinary disorders, leacorrhoea associated with schizophrenia, abdominal disease.
6.	Pasi	All organs are affected, pricking pain all over the body, schizophrenia, emaciation, apathetic face, pain in the joints.
7.	Neervetkai	All organs are affected, pricking, pain all over the body, schizophrenia, emaciation, apathetic face, pain in the joints.
8.	Erumal	Increased cough, bad breath, heart disease.
9.	Elaippu	Urinary disorders, peptic ulcer, schizophrenia, rigor, identical features of suppression, sneezing.
10.	Thookkam	Heavines of head, pain in the eyes, deafness, unclean speech.
11	Vanthi	Urticarial rashes, itching, anaemia, eye diseases, disease of increased pitham, asthma, fever, cough.
12.	Kanneer	Heart diseases, upper respiratory disorder, eye diseases, wounds in the scalp, peptic ulcer.
13.	Sukkilam (or)	Fever, anuria, joint disease of the upper and lower limbs, acute chest pain, increase urinary diseases.

	Suronisham	
14.	Suvasam	Cough abdominal discomfort, tastelessness, epigastric pain, increased urinary diseases.

The affected vegam in eye disease are

Thookkam – Pain in the eyes; Thummal – Pain in the sense organ; Kanneer – Eye diseases.

5. Immunity status : (udal vanmai)

Apart from food and climate conditions the disease affect an individual is also based on the immunity.

Piniyarimuramai: (Diagnosis)

In any system of medicine diagnosis is very important. Piniyarimuraimai is the method of finding out the disease.

The diagnosis is mainly based on the Envagai Thervugal. It is the unique and special method having a broad and important role in diagnosing the particular disease. It is based upon the following principles

1. Poriyal arithal
2. Pulanal Arithal
3. Vinnathal

1. Poriyal Arithal:

Understanding by the five organs of perception – nose, tongue, eyes, skin and the ears.

1. Mei – Skin
2. Vaai – Mouth
3. Kann – Eye
4. Mooku – Nopse
5. Sevi – Ear

2. Pulanal Arithal:

The physician knows about the patient nature place (Thinai), his condition, mode of living, diet and duration of his disease etc. If the patient is unable to talk (deaf and dump and other disease conditions) or if he is a child the particular about the disease are obtained from his relative or parents.

Envagai Thervugal:

“ நாடி பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமிமை மருத்துவராயுதம்”

Envagai Thervugal are

1. Naadi (pulse)
2. Sparism (palpation)
3. Naa (tongue)
4. Niram (colour)
5. Mozhi (speech)
6. Vizhi (eyes)
7. Malam (stools)
8. Moothiram (urine)

1. Naadi:

The science of pulse is peculiar to siddha system of medicine.

The rhythmic expansion of an artery which may be felt by the finger which represents the state of function of the heart.

It serves as the reliable indicator of all diseases. If there is any imbalance in the normal proportion of uyirthathukkal, it is reflected through naddi.

Suitable place for the pulse reading

“ தாது முறை கேள் தனித்த குதிச் சந்தோடு
ஓதுறு தாமியமுந்தி நெடுமார்பு
காது நெடுமூக்கு கண்டம் கரம் புருவம்
போதுறு முச்சி புகழ பத்தும் பார்த்துடே.”

Even though Naadi can be felt on the above mentioned peripheral arteries, commonly the radial artery at the wrist is ideal for all people.

“ போர்ந்திடவே சகலருக்குங் கரத்தினாடி
மேல் பித்தம் மோரரையாய்
ஐயங்கா லென்றே அறி”

The gait of Naadi is compared with the gait of animal, reptiles and birds.

Vatha Naadi – Movements of Swan and hen.

Pitha Naadi – Movements of tortoise and leech.

Kabha Naddi – Movements of frog and snake.

In Naadi purudan and Kaanthari are affected

Purudan :

Lies in the right eye

Kaanthari :

Lies in the left eye

2. Sparism (palpation)

Sparism is the temperature of skin (heat and cold), smoothness or roughness, sweat, dryness, hard patches, swelling, enlargement of visceras, tenderness and nourishment can be felt.

3. Naa (tongue)

By the examination of the tongue its colour, coating, dryness, speech, redness, ulceration, pallor, excessive salivation, predominant taste in the tongue, any malignant growth and movements of the tongue can be noted.

4. Niram (colour)

Diagnosis made with the help of the colour of the skin , nails, hair, conjunctiva, teeth, mucous membrane etc.

5. Mozhi (speech)

In the examination of mozhi, the pitch of voice (low or high), loudness of voice, slurring speech, speech in hallucination, aphasia should be noted.

6. Vizhi (eye)

By the examination of vizhi, redness, yellowishness, pallor, dryness, lacrimation, sharpness of vision, response of pupil, condition of hair in the eye should be noted.

7.Malam (faeces)

In the examination of the malam, note its nature, whether it is solid, semisolid or liquid, colour, smell, quantity, odour should be noted.

8. Moothiram (urine)

In the siddha system of medicine changes of urine observed with in two peculiar studies, they are

I. Neerkuri

II. Neikuri

I. Neerkuri:

Physical findings of urine are said as

“வந்த நீர்க்கரி எடை மணம் நுரை எஞ்சலென்

றைந்தியலுளவை யறைகுது முறையே”

According to this verse colour, quantity, odour, frothy appearance, deposits, specific gravity are to be noted.

II. Neikuri:

A drop of gingili oil is dropped into a wide vessel containing the urine and is kept in the bright light a calm place without shaking. The dearangement of three thathus is studied by the nature of oil spread on the surface of the urine.

The siddhars followed this method for prognosis of the disease and classify the disease as curable and incurable.

Treatment in siddha medicine is aimed at keeping the three doshas in equilibrium and maintenance of the seven thathus. So proper diet, medicine and adjuvant and the regimen of the life are advised for the healthy living and to restore equilibrium of doshas in increased or decreased conditions.

The diseased condition body shows many signs and symptoms. To diagnose the disease and choose the correct medicine the physician must have the knowledge of the pathology of the disease. It is essential for the correct treatment of the patient.

AIM AND OBJECTIVES

Eye diseases are increased in alarming rate now-a-days due to

- ❖ increased premature ageing
- ❖ life style modifications
- ❖ global warming
- ❖ recent industralisation
- ❖ over usage of computers and electronic devices
- ❖ improper methods of safeguarding eye
- ❖ dramatic change in dietary regimen etc.,

Among 96 Siddha eye diseases. Most of them are premature ageing related disease .

The principle Aim is to evaluate the pathology of ‘Naga Padalam’ and to collected & review the view and ideas of the siddhars about this disease

a) Naga padalam is common in India and world wide distributed more prone in Equatorial regions
b) Common in all age groups but have higher incidence in aged ones
c) Uncontrolled peristence of disease worsen the vision and corneal astigmatism results.

Having these features in mind. The following objectives are enumerated.

Objectives

Survey of siddha literature

a) Siddha physiology

b) Collection and detailed study of various eye books, regarding Nagapadalam

Also dealing with definition aetiology, classfication, signs and symptoms of disease, aggravating factors fate of the disease, line of treatment and diet interaction

- To expose the efficacy of siddhar diagnostic and surgical principle
- To list out incidence of the disease, with reference to Age, Sex, location, climates (paruvakaalam) the land in which the patient exist
- To know and corelate the features of Naga padam with that of modern aspects
- Diagnostic methods of Nagapadalam
- Importance of eye is an diagnostic tool
- To list out the relation of the disease with occupation , and his exposure to radiation

Preventive methods and controlling procedures of eye disease

INTRODUCTION TO EYE DISEASE

According to ancient saying,

"¸ñ½¢ü °¢È ó¾ ¯ÚôÒ þø¨Ä."

We can come to an idea about the importance and peculiarity of eye.

Also among the 5 sense organs eye is considered to be the best, and it is compared to ones "Intelligence".

According to V.R.Madhavan the author of ophthalmology in siddha medicine

Kanmani of eye is compared to God by many of siddhar's.

History:

Even though, concept of eye have gained importance in stone age and bronze age, it was regularised. Only during the regime of 'King Hamarabi' the ruler of 'Babilona'.

By 600 BC Greek scientist 'Pithakors', 'Decrae', 'Phina', elaborated the eye disease.

In India, **Father of surgery** Sushuratha and Dharmendra had done eye surgeries.

During their, period the **couching method** of removing cataract have been in practice.

Management of Eye disease

i. Maanida Maruthuvam (Medical Treatment)

ii. Asura Maruthuvam (Surigical Treatment)

Eye disease is being cured by the above said methods.

¸ñ ¬ö×ì ¸ÕÅ¢ / Eye Inspecting Instrument

Buddhist scholar Helmhattz (1821 - 1894) invented an eye surgical instrument in 19th century to, analyze the various diseased condition of the eye.

ஐம்பூத சேர்க்கை

1. மண் (பிருதிவி) : மண்ணின் கூறாக கண்கோளத்திலுள்ள பாகங்கள் அமைந்துள்ளன.
2. நீர் (அப்பு) : நீரின் கூறாக வெள்ளைவிழி அமைந்துள்ளது.
3. தீ (தேயு) : தீயின் கூறாக அதிலுள்ள இரத்தமும் பித்தமும் அமைந்துள்ளது.
4. வளி (வாயு) : வளியின் கூறாகக் கருவிழி அமைந்துள்ளது.
5. விண் (ஆகாயம்) : விண் பூதச்சேர்க்கையினால் கண்ணீர் துவாரங்களும் உண்டாகின்றன.

Related Terms

1. கோழைப்படலம்	-	Conjunctiva
2. வெள்விழி@கடினை	-	Sclera
3. கருவிழி@சிருங்கை	-	Cornea
4. @கிருஷ்ணபடலம்- @பாவை @தாரை @சோதி	-	Iris
5. பரிதிகம்	-	Ciliary body
6. தரிசியம்	-	Retina
7. இயவம்	-	Lens
8. வனம்	-	Aqueous Humour

9. படிகம்	-	Vitreous humour
முதல் படலம்	-	கடினை மற்றும் சிருங்கையினால் ஆனது.
இரண்டாவது படலம்	-	தரணிசம் , வருணி , பரிதிகம் என்ற சவ்வினால் ஆனது
மூன்றாவது படலம்	-	தரிசியம்

கண்ணோய்

கண்ணோய் தொண்ணூற்றாரின் பெயர்.

அக்கிர ரோகம் அவிகாய விரணம்
உக்கிர ரோகம் உடைந்தெழுந் திடுதல்
சாய்கண் குருடு தடிப்புத் தினவு
தூய வெண்குருடு சுக்கிர ரோகம்
மாலை காசம் மருவுகண் சிவப்பு
நீல காசம் நெறியொளி மழுங்குதல்
அருவிநீர் தும்மல் அடைந்தெழுந் திடுதல்
பருமுளை யெழுச்சி படர்வெள் ளெழுத்து
சோதியில் விரணம் துர்மாமிச வளர்ச்சி
கோதிலா விழியில் குருதி சீழ் பிடித்தல்
நிமை முழி மாமிசம் நெருக்கிப் பிடித்தல்
அழிகண் புழுவெட்டர்ந்தெழுந் திடுதல்
நாக படலம் நன்முழி விழுங்கி
மேக வெட்டையால் மேவிடு மந்தம்
முழிகண் குருடு முன்னிமைக் குத்து
வாத காசம் மணிகாசம் கண்குருடு
உருவிழி புடைத்து உயர்ந்தெழு காளான்
பரவைப் பூவொடு பஞ்சுநீர்ப் படலம்
அமரம் புகைச்சல் அதிகமந் தாரம்
திமிரம் சேர்நெறி செவ்வேர் முடமயிர்
அந்திர காசம் அழற்றின கண்ணோய்
சந்திர ரோகம் தலையெழு நாயிறு
கூசி விழித்தல் குவளை நெறித்தல்.
காச மிருட்சி கண்விர ணப்பூ
துண்ணு காசம் சுழல்விர ணப்பூ
அன்ன கோபம் அழற்றிய மாலை
கண்பக்கப் படலம் கற்பமா ரோகம்

அக்கரம் பில்லம் அளித்திடும் பிரித்தல்
பித்த காசம் பிறவிக் குருடு
துத்திடுங் காளான் துன்னுவெண் புகைச்சல்
கண்ணி லெழுச்சி கண்குவளை நெரித்தல்
விரண சுக்கிரன் வெண்ணோக் காடு
சூழ்ந்திடும் பில்லம் சேராக் கண்துடிப்பு
வருஞ்சல ரோகம் மயிர்ப்புழு வெட்டு
விதன மந்தாரம் வீங்குதல் விழியனல்
மதன மந்தாரம் வளர்தெழு ரோகம்
சுடர்பல தோன்றல் சுடரதி மாமிசம்
உயர்ந்த கண் புடைத்தல் உவரெழு காசம்
வால காசம் மருவிழி காசம்
ஒரு நீர்ப் பில்லம் ஒரு நீர்ப் பாய்ச்சல்
குவளை விப்புருதி குன்றிமைத் தடிப்பு
குவளை காசம் கொடும்புழு வெட்டு
மந்தார காசம் வாலையிற் காசம்
அந்திர விரணம் இமையோ டுறுத்தல்
நத்தை படுவன் நற்குவ ளையோடு
புத்து எழுந்திடும் பொங்கிய விதனம்
எண்ணிய வியாதிகள் தொண்ணூற் றாறும்
கண்ணினில் வினையெனக் கருத லாமே.

The dissertation topic of author is Nagapadalam among 96 eye diseases.

CLASSIFICATION OF EYE DISEASES - AGATHIYAR'S VIEW

According to siddhars tamil Medical science, the eye diseases are brought under three general classifications with regard to the three humours in the human system. They are sub-divided into 96 different kinds as follows.

Deranged Vatha - 45

Deranged Pitha - 31

Deranged Kaba - 29

The above said 96 diseases are the eye as shown under

Lens	- 27	Binding unions	- 9
Black of the eye	-10	Eye lids	- 24
White	-13	Eye ball	- 13

The poem which is believed to be original containing the names of 96 diseases are quoted as an authority.

The descriptive names of the 96 diseases enumerated in the said vesres of the prologue to Agasta's 500 on diseases of the eye are

In tamil medical science compiled by Nagamuni, the diseases of the eyes are divided into 96 kinds and according to the four regions of the eye, they are classified as shown under:

I. Diseases of the black of the eye - 45

[Including the cornea, choroid, Iris, retina, Pupil, lens and the vitreous body]

II. Diseases of the white of the eye (Sclera) - 20

III. Diseases of the eyelids - 16

IV. Diseases of the angles of the eye - 15

I. Diseases of the black of the eye.

a. Kasam - 8

b. Padalam - 7

c. Kumudam - 3

d. Vizhiundhal - 3

e. Kundam - 3

f. Timiram - 7

g. Vari - 3

h. Sukkiran - 5

i. Nerisal - 3

j. Poo - 3

a. Kasam (diseases of the lens)

b. Padalam (diseases of the several coats (or) Films over the pupil)

c. Kumudam (Morbid growth of flesh over the pupil)

d. Viziundal (spreading growth on the cornea)

e. Kundam (protrusion of the eye ball)

f. Timira (loss of vision)

g. Vari (streaks or lines on the cornea)

h. Sukkiran (white film or fleshy growth on the choroid including the iris or the white speaks on the black of the eye)

i. Nerisal (Pressure due to swelling of the eyeball)

j. Poo (cataract)

II. Diseases of the white of the eye (sclerotic coat)

a. Eluchi (tubercle)

b. Padarthi (film)

c. Nerisal (Pressure due to swelling or enlargement)

d. Putru (abnormal growth (or) swelling with punctures or sinuses)

e. Kumilam (red boils)

f. Vari (streaks (or) lines)

III. Diseases of the eyelid

a. Pillam (blepharitis)

b. Parparoga (Morbid softening)

c. Kalalai (tumor)

d. Tadippu (thickenning)

e. Mudamayir (trachiasis)

f. Izhichakkan (inability to close the eyelids)

g. Imaineerpaichal (lacrimation)

h. Sutrukulaivu (ulceration)

i. Puzhukkadi (Madarosis)

j. Imayiraichi (entropion)

IV. Diseases of the corners or angles of the eyes (inner and outer)

a. Padarthi (Filmy growth)

b. Kuvai (conical shaped growth)

c. Kannokadu (frequent swelling)

d. Poosandram (tubercle)

e. Vizhivadham (paralysis)

f. Viranaparu (wart in the edge)

g. Vuipuruthi

h. Immaikkuru (stye)

i. Kumil (Membraneous growth)

j. Nethravayu (ptosis)

k. Kannoi (inflammation)

PADALAM

படலம்

"பேசிய படலம் மேலும் பெய்வளை மானே கேளாய்
கூசியே விழிசி வந்து கொழ்சதைப் படல மற்றும்
மாசுறு படல நீரால் மாரத்துப் படலத் தோடு
வீசியே வரிய டர்ந்த படலமின் னுங்கேள் மின்னே"

"கார்குழல் மானே கேளாய் கருநாகப் படல மோடு
கூர்விழி மந்த மாகும் மாங்கிசப் படலக் கூறும்
ஏர்பசு விழிய டர்த்தி என்றிவை மூன்றுந் தானே
நேரிலா சாத்தி யத்தின் குணமென நிகழ்த்ததி னாரே"

- Sathai padalam
- Neer padalam
- Raththa padalam
- Vari Eluchi padalam
- Athi Mangisha padalam
- Pasu vizhi padalam
- Karunaga padalam

Nagamuni Classification of padalam

- Nagapadalam
- Raththa padalam
- Neer padalam
- Vellai padalam
- Panju Neer padalam

Agathiyar Classfication of padalam

Curable padalams

- Sathai padalam
- Raththa padalam
- Neer padalam
- Vari Eluchi padalam

General Management of padalam

படலங்களுக்குச் சுட்டிகை அல்லது இரட்சை

"இவையற மாறா தாகி லியல்மொழி மடங்க லென்னு
நவையறு கருவி யாலே நடுநரம் பறிந்து கொண்டு
குவையிரண் டதனின் மீதுங் கொதித்தெழும் ரட்சை செய்யச்
சுவையுறு முனிவர் சொன்ன தாரணை யறிந்த கொள்ளெ"
அறிவுசெய் யேழு நாளு மழுந்தவே புண்ண தாக்கிக்
குறியுற மன்னெ சொன்ன மருந்தோடு தாரை கொள்நீ
மறிவிலா விழியி னுள்ளே வந்திடும் படலம் போகும்
நறைகமழ் குழலினாளே நாநீ யறிந்த கொள்ளே"

Cauterize the middle nerve which supplies the eye, by the eye surgical instrument **Madangal**

Then treat the ulcer caused by cauterization, symptomatically

SURGICAL PROCEDURE FOR NAGAPADALAM

நாகபடலம் எடுக்கிற நிதானம்

கருதாய் விழியற் கடையுற்று கருத்த சோதி யதனுள்ளே
மருவாய் வெள்ளை மேலோடி மருவிச் செந்து லதுஒப்பாய்
உருவாய் மேவித் திரண்ட செவ்வேர் உரித்ததோல் தன்தசை போல
வெருவாய் வந்த நற்கண்ணி விலிசங் கொண்டே உரியாயே.

கடைக்கண்ணிலிருந்து உண்டாகி வெள்ளை விழியின்மேல் படர்ந்து சிவப்பு நூல்போல தோன்றி சதைபோல் தடித்து கருப்பு விழியையும் கடந்து ஜோதிக்கு சமீபத்தில் எட்டிப்பார்க்கும் இதை பரிசம் என்னும் ஆயுதத்தைக் கொண்டு உரித்துவிடுவாயாக.

விலிசங் கொண்டே உரித்த பின்னர் வினவிக்கிரியை நீகேளாய்
தெளியும் படியே நெய்கொண்டு தியங்க ஒத்தி தானொழுக்கி
புளியந் துளிர் பூலாவோர் புதிய தேனூறல் தன்னுடனே
தேளியச் சீவி தாய்ப்பாலில் தியங்க நறுக்கி வார்த்திடுமே.

விலிசம் என்னும் ஆயுதத்தைக்கொண்டு உரித்த பிற்பாடு செய்ய வேண்டிய கிரியைகளை நீ கேட்பாயாக. நெய் ஒத்தணம் செய்தும், கண்ணுக்குள் நெய்யை விட்டும், **புளியங் கொழுந்து , பூலாவோர்** இவைகளோடு புதிய **தேனைக்** கூட்டி நறுக்கிப் பிழிந்து **தாய்ப்பாலையும்** சேர்த்து கண்ணில் இடுவாயாக.

"கருதாய் விழியற் கடையுற்று கருத்த சோதி யதனுள்ளே"

"The Head of Pterygium encroaches the pupil"

"மருவாய் வெள்ளை மேலோடி மருவிச் செந்நு லதுஒப்பாய"

"It runs over the Sclera as equal proportion to the thickness of the red thread.

"உருவாய் மேவித் திரண்ட செவ்வேர் உரித்ததோல் தன்தசை போல
வெருவாய் வந்த நற்கண்ணி **விலிசங்** கொண்டே உரியாயே."

"By the eye surgical instrument **vilisam** excise the pterygium very carefully without affecting the cornea"

Vilisam - An eye surgical instrument used in Siddha medicine to excise the pterygium

Tooke's knife - An eye surgical instrument used in Modern Eye surgeries to excise the pterygium

POST OPERATIVE TREATMENT PROCEDURES

a) Compressing eye with bandage soaked in cows ghee

b) Instil cows ghee

c) Tender leaves of Tamarindus Indicus
Poola ver
} Grind both of these drugs with honey mix the above preparation with equal amount of Mother's milk

d) Instil the above said preparation into the excised eye

According to Sambasivam Pillai dictionary

Padalam : Milky white opacity of the cornea due to filmy growth on the sclerotic coat of the eye. it may also affect any of the four coats, layers of films of the eye

First coat is anterior coat

The second choroid .

The third is sclerotic and cornea

The fourth is retina (Dristi)

It consists of different kinds as follows

1. Kannuru padalam – Opacity of cornea & the lens
2. Karuppu padalam – Inflammation of the cornea – Keratitis
3. Vellai padalam – Inflammation of the white of the eye.
4. Udhara Padalam – Reddish growth

நல்ல கண்ணின் இயல்பு

Features of normal eye

"வெள்ளையில் சிவப்பு றாது விளங்குநற் படிகம் போன்று

ஒள்ளிய சோதி தன்னில் ஒளிநிற வண்ண மாகில்

உள்ளொளி பொருந்தவங்கே உன்முகம் விளங்கத் தோன்றில்

ஒள்ளிய நயனமாகும் உண்மையீ தறிந்தி டாயே"

Agathiyar describes about Normal Eye as follows

Sclera and Conjuctiva must be clear as padigam (Alum)

Examiner's image must be seen on visualized eye.

Clear Pupil

Dimensions of Eye

"பங்கமில் விழியி னீளம் பகர்தரு மகலந் தன்னோ

புங்கத னாழ நீதான் இயல்புட னுரைக்கக் கேளாய்

அங்குல மிரண்டி னோடே யுரையுமொன் றுமென லாகும்

செங்கயல் விழியின்டாதே செகத்துளோர்க் கறிந்து கொள்ளே"

Length of the Eye	-	2 inch
Breadth of the Eye	-	½ inch
Depth of the Eye	-	1 inch

Proportion of Eye organs

"நயனத்தில் முறைத் தொன்று நசைகரு விழியே யென்ப

பயனொத்து நிலவு மாறு பகுத்திடு மேழி லொன்று

வியனொத்த சோதி யென்ப மேதினி தனில்வாழ் மக்கட்

கயனொத்துப் படைத்தான் கண்டாய் யன்னமென் னடைய ணங்கே"

Black portion	-	1/3 of the eye ball
Pupil	-	1/7 of the cornea

வயதும், பார்வைத் திறனும்

Level of vision based on their ages

"தெளிவது ஒழியா நிற்கும் தீங்கில்லை முப்பத் னதந்தில்
ஓளியது புகைந்து சற்றே ஒதுங்கிடு நாற்பத் தஞ்சில்
வெளிபுறப் புதைந்து காட்டும் மேவிய ஐம்பத் தேழில்
அளியுற விருளுங் கண்டாய் ஆண்டது நூற தாமே"

Till 35 years : no change in vision

35 - 45 years : Cloudiness or Blurring of vision

45 - 57 years : Haziness of vision

57 - 100 years : Total blindness

இன்ன கலத்தில் இன்னது செய்ய நன்று என்பது

Rules for taking medicine

"செய்யநற் பேதி தானும் செய்வதும் கால மேற்க
உய்வு மோக்காளத் துக்கே உகந்ததோர் சாமத் துள்ளாம்
பொய்யுமா நசியந் தானும் பெரும்பதி னெழுக் குள்ளாம்
மெய்யுறு மருந்தே கண்ணில் மிகுந்திடும் அந்திமிக்காம்"

Purgative medicine	-	At morning
Emetic medicine	-	within 3 hrs of sun rise

Nasal drops	-	Within 24 minutes of sun rise
Eye drops	-	Before sunset (Wise at evening)

மருந்திடும் நேரமும் முறையும்

மிக்கவே ரெழுது காலம் யாவுமா மிதுன நன்றோ

பொக்கவே துலாந்தேள் மாசம் காலையாம் உயர்வில்லோடு

தக்கமா மகரம் கும்பம் மீனமத் தியானம் மற்ற

பக்கமா தங்கள் கண்ணில் பதினெட் டாமஞ சனங்கள்"

Application of eye medicine

Aani, Iyppasi, Karthigai	- Morning
Margali, Thai, Masi, Panguni	- Day time
Sithirai, Vaigasi, Aadi, Aavani, Puratasi	- within 18 Nazhiligai

"மருந்திடும் நேரந் தன்னில் மகிழ்ந்திடு நேர மிட்டால்
திருந்திட இருள்கள் நீங்கும தீர்ந்திடும் நோய்க ளினின்றும்
பரிந்திடும் நேர மொன்றில் பண்பினால் விடியற்காலம்
விரைந்திடும் அந்திநோரம் வினையறும் நயன மீதே"

Application of eye medicine is recommended for 2 times in the morning and evening. If one time advisable evening is the best.

Eye medicine should not applied after sunset.

Surgical procedure of the eye should be done in the morning and leech therapy in the evening.

மருந்திடா நாள்

Contraindicated days

"தனக்குமந் தாரநாளும் தலையது முழுகும் நாளும்
விளக்குறு மாதர்மத விடாயினால் வெளிநில் நாளும்
மணக்குறு பத்துந்தானும் மருந்துதான் இடுதல் தானும்
கனக்குமே கண்ணில் நோவு காண்பிக்கும் செய்யா நாளே"

Contraindicated timings for application of Eye medicine

1. During rainy season
2. After taking oil bath
3. During menstural period

நோய்வரும் வழி

"கெர்பபத்திற் சிசுவாழ் போது கிருமிகள் சேர்ந்திட் டாலும்
கப்பிய பசியுற்றாலுங் கலக்கங் கொள் திகில்நேர்ந் தாலும்
செப்புமாங் கனிகாய் மெத்த தேடியே புசசித்திட்டாலும்
ஒப்புறு மகவின் கண்ணில் வியாதிவந்தணுகுந் தானே"

Factors which are responsible for the eye diseases in Intra uterine life

1. Altered food habits
2. Excessive drug intake
3. Excessive thirst and hunger
4. Intake of mangoes
5. Parasitic infections in pregnant mother

Also,

- Walking for a long distance
- walking without chappals
- distrubed sleep
- Visualizing lightining , fire

- Consuming vinegar during drug Intercated periods
- Living in Excessive wind areas
- Lifting heavy weights in head
- Habitual consumption of beetel leaves

உட்டண மதிகத் தாலும் உதித்திடு மந்தத் தாலும்
உட்டணப் பொருள்க டம்மை யுகந்துதான் முகர லாலும்
உட்டண வெயிலில் நாளு முழன்றுநீ ராட லாலும்
உட்டண மதிக மீறி உதித்திடுங் கண்ணி ணோயே

- Increased body temperature.
- Taking oil bath after roaming in sun light.
- Inhaling camphor, Michelia chenbaga, fumes

"நித்திரை யிலாத தாலும் நீள்வெயி லொழுகல் தன்னால்
நித்திரை சமயந் தன்னில் நிமிர்தலை கவிழ்தல் தன்னால்
பத்தியங் காடி கொள்ளல் பருகுநீ ரதிகங் கொள்ளல்
மத்திய மதிகக் காற்றால் வந்திடுங் கண்ணி ணோயே"

- Due to lack of sleep
- Sleeping in sitting posture
- Intake of Alcohol and Beverages
- Increased or chronic exposure to wind

"மனமிடை குன்றினாலும் மாதர்தம் மாசை யாலும்
கனமலச் சேர்க்கையாலும் கவிழ்ந்திடு பார்வை யாலும்.
தனமிகக் கெடுகை யாலும் தணிவிலா நடையினாலும்
சினமிகக் கொள்ளலாலும் சேர்ந்திடும் நயனநோயே"

- Depression
- Accumulation of faecal matter in large intestine
- Performing work in head – down position

கண்ணினி லழன்றெ ரித்த காரண மேதோ வென்னில்
நண்ணிய வப்பு தன்னை நலமிகப் பருகை யாலும்
திண்ணிய வறட்சி யாலும் சேர்ந்தெண்ணெய் போகா தாலும்
விண்ணெழு மின்ன லோடு விளங்குதீப் பார்ப்ப தாலும்

- Increased intake of water
- Increased dryness of body
- Visualizing lightening

உண்டிடு மசனந் தன்னி லுகந்துகல் கடிக்கை யாலும்
கொண்டகல் மயிரி னாலுங் கொடுமலச் சேர்க்கையாலும்
பண்டுவெற் றிலையும் பாக்கும் பக்கரை யடக்கை யாலும்
கண்டநேத் திரந்த னக்குக் கருதிய நோய்க்கு தாயாம்

- Consuming food particles mixed with stones and hair
- Habitual beetel chewing

நோய் அணுகாதிருக்க

Preventive measures

"நிலமிசை மாந்தர் நோய்கள் நீங்கிடத் திங்க ளாறில்
சலமறச் சக்தி செய்யத் தக்கதாம் திவமா தத்தில்
மலமறப் பேதி செய்ய மாதமொன் றினிலே நசியம்
பலமுற மூன்றாம் நாளஞ் சனமிடப் பகர்ந்த தாமால்"

6 months once	-	Vomitting	-	Pitham thanillai
4 month once	-	Purgation	-	Vatham thanillai
45 days once	-	Nasal drops	-	Kabam thanillai
3 days once	-	Eye Application	-	Improves the vision

கண்ணொளி பெருக்க பல் தூய்தாக்கல்

"சீர்பெறு நயனந் தன்னில் சேர்ந்தநோய் வாரா வண்ணம்
கார்செறி குழலி னாளே கருதிடு தந்த சுத்தி
நீர்திகழா லெருக்கு நிறை வேலந் திறம் பூலா
சேரிடப் பக்க முற்றித் தேய்திட வலத்தில் பின்னே

Brushing with stems of banyan (or)

Jack fruit (or)

Accacia

நிலவை பார்த்தல்

"கைவிரல் தன்னைக் கொண்டு கலந்து பல கணிபோல விட்டு
துய்யசந் திரனை மெள்ள தெளியவே நோக்கிப் பாரும்
வெய்யொளி யுண்டு நீயும் விரவிய கண்ணில் நீரை
துய்யமாய் விட்ட லம்பித் துவளாக பிசைந்திட்டாயே"

Arrange the fingers as **palagani** and see the moon for few minutes through the window . Then wash and give gentle massage to the eyes.

அமிர்த யோகம்

"உண்டுகை கழுவிப் பின்னே உறுமைய மூன்று துளி
வண்டணி குழலால் வார்த்து வளமிகும் நிமையைத் தேய்த்து
கொண்டொரு கடிகை நேரம் குணமிகுந் கதிரை பார்த்து
பண்டுபோ லிருக்கும் போது வரிவுகண் அமிர்தயோகம்"

Instil three drops of pure water in to the eyes in the night and gently massage the eyelids and see the moon, this method is called **"Amirthayogam"**

உணவு முறைகள்

"திண்ணார் பண்ணைக் சிறுகீரை மறந்தார் சீர்கேடாய்
பொன்னாங் காணிக் கூறிகூட்டார் பூசார் பாதம் நெய்யுண்ணார்

பண்ணார் மதியங் தனைப்பாரார் பால்வார்த் துண்ணார்

கண்ணார் நோயாற் கவல்வரதை யாமும் சொல்லக் கடவோமே”

Hygienic measures to prevent eye diseases

1. Regular intake of green leaves
2. Intake of milk products like ghee , milk etc., atleast twice a day
3. Brush regularly

உள்ளங் காலில் நெய் பூசுதல்

“கண்ணது பலகால் நொந்து கடுகிவே வழன்று வந்தால்

நண்ணிய உள்ளங்நறு நெய்யை மிகவும் தேய்த்துத்

திண்ணிய தவிடு மரவால் சிறிக்கவே தூலிவைத்து

தண்ணெனத் தழுவி நல்ல சந்தனம் பூசத் தீரும்

If there is any discomfort in eye, apply ghee in the sole and wash with water then apply sandal paste to the foot.

Kayakalpha Drugs

Common & Special Kaya Kalpha drugs to prevent & cure Eye disease

பஞ்ச கற்பம்

மிருகமத(ம்) பித்தமணி வேம்புகடு நெல்லி

கருகுரத்துப் பாலரைத்துக் காய்ச்சி - யொருமிட

விங்கற்ப நோய்க்கு மிடமின்றா மெஞ்ஞான்று

மைங்கற்ப மீதே யறி”

- கஸ்தூரி மஞ்சள்
- மிளகு
- வேப்பம்வித்து
- கடுக்காய்தோல்
- நெல்லிபருப்பு

இவைகளைக் காராம்பசுவின் பால் விட்டரைத்துக் கொதிக்கவைத்து . சிரவில் தேய்த்துக் கொண்டு குளித்துவர கண்பிணிகள் வராது . இது பஞ்சகற்பவிதி எனப்படும்.

2. தூதுவேளை:

கண்ணிலே உண்டாம் பித்தநீர் முதலான நோய்களை நீக்க தூதுவேளைக் காயைக்கறி, வற்றல், ஊறுகாய் ஆகவும் , இலையைக் கீரையாகவும் சமைத்து நெய்கூட்டி ஒரு மண்டலம் புசிக்க வேண்டும்.

3. பனைவேர் :

பித்த வெப்பத்தினால் உண்டான படலம், மறைப்பு , காமாலை, புழுவெட்டு, அருகல் இவைகளுக்குப் பனைமரத்தின் வேரைப் பயன்படுத்த குணம் தரும்.

ஆதாரம் : சித்த மருத்துவம் - சிறப்பு

மரு. ஆர். தியாகாராஜன், எல்.ஐ.எம்.,

READING LINES BETWEEN AGATHIYARS POEM

நாகபடலம் - நாகம் + படலம்

நாகம் - A triangular shaped area

படலம் - A filmy layer (or) growth

"கடைகண் ணிருபுறத்தில் காணவே சிவப்புத்தோன்றில்"

- இரு கடைக்கண்ணிலும் சிவந்து அழுத்தமான சதை வளர்ந்து காணப்படல்

" தொடைசதை போல வந்து சோதியைத் தின்னுனாளில்"

- தொடையில் காணப்படும் சதையைப் போல கடைக்கண்ணில் தோனறி வளர்ந்து கண்ணின் சோதியை மறைக்கும்

"அடைந்திடும் விழிகள் தன்னில் அதிகநீர் தினவுமுண்டாம்"

- விழி அச்சை தொடைசதை போன்ற வளர்ச்சி மறைப்பதால் உறுத்தல் ஏற்பட்டு அதிக நீர், அரிப்பு ஏற்படுகிறது.

"நடைபடி குணங்களெல்லாம் நாகமாம் படலமாமே"

- இத்தகு குணங்கள் இருப்பதனால் இது நாகபடலம் என்று கூறப்படுகிறது.

DETAILED PATHOLOGICAL VIEW OF THE

DISSERTATION TOPIC

NAGA PADALAM

"கடைக்கண் ணிருபு றத்தில் காணவே சிவப்புத் தோன்றில்
துடைசதை போல வந்து சோதியைத் தின்னு நாளில்
அடைந்திடும் விழிகள் தம்மில் அதிகநீர் தினவு முண்டாம்
நடைபடி குணங் களெல்லாம் நாகமாம் படல மாமே."

Agathiyar describes Naga padalam in the poem 24

நாகபடலம் (a) - கடைக்கண்ணில் சதை வளரும் ஒரு கண்ணோய்.

An eye disease in which a film is formed over the pupil of eye

கடைக்கண் - The outer or the inner corner(canthus)of the eye

a) Temporal
b) Nasal

நாகப்படலம் (b):

இருகண்களிலும் சிவந்து அழுத்தமான தடித்த சதை வளர்ந்து வெள்விழி முழுவதம் கடந்து கருவிழியிலும் படர்ந்து நடுவிலிருக்கும் பாவையையும் நாளாவட்டத்தில் மறைத்து கண்ணீர் வடிந்து அரிப்புண்டாக்கும் ஓர் வகைக் கண்ணோய்.

An eye disease characterised by inflammation of both eyes choroid coating or film spreading over the pupil and thus affecting the eye sight by covering the cornea . It is marked by discharge of water from the eyes followed by itching

"கடைக்கண் ணிருபு றத்தில் காணவே சிவப்புத் தோன்றில்"

கடைக்கண் ணிருபு றத்தில் - The outer and the inner corner of the eye

a) Temporal

b) Nasal

சிவப்பு - Redness of the Eye (mainly due to conjunctivitis or inflammatory changes)

Conjunctivitis (Redness of Eye) Inflammatory condition of conjunctiva. Conjunctiva has two layers. Epithelium and sub-epithelium. Irritation of the conjunctiva from any cause, whether infection, allergy or mechanical trauma results in congestion of the superficial bloodvessels, run perpendicular to the superficial plane of vessels, So as to protrude into the epithelium as vascular tufts. Growth of elastic tissue from the sub epithelial layers forming around these vessels causes the papillae which are constant findings in all types of conjunctivitis.

Hyperplasia of the lymphoid tissue of the sub-epithelial layer may result from conjunctival irritation.

There is usually some hypertrophy of the epithelium in inflammation of the conjunctiva and there is increased desquamation of the superficial layers.

Which is, partly the cause of mucopurulent discharge from the conjunctival sac.

Throughout the course of an attack of conjunctivitis many inflammatory cells are present in the sub-epithelial layers. They are lymphocytes, plasma cells, histocytes or polymorphonuclear leucocytes. The setting of the inflammatory process is followed by the absorption of these cells

”துடைசதை போல வந்து சோதியைத் தின்னு நாளில்”

துடைசதை - A triangular shaped film is formed similar to ‘Quadriceps femoris’, It progress to pupil as the days go, and hides.

PATHOGENESIS OF THUDAISATHAI

Numerous theories have been postulated for the pathogenesis of pterygia, including choline deficiency, inflammation degeneration tissue angiogenesis factor; changes in the elastic tissue and immune mechanisms.

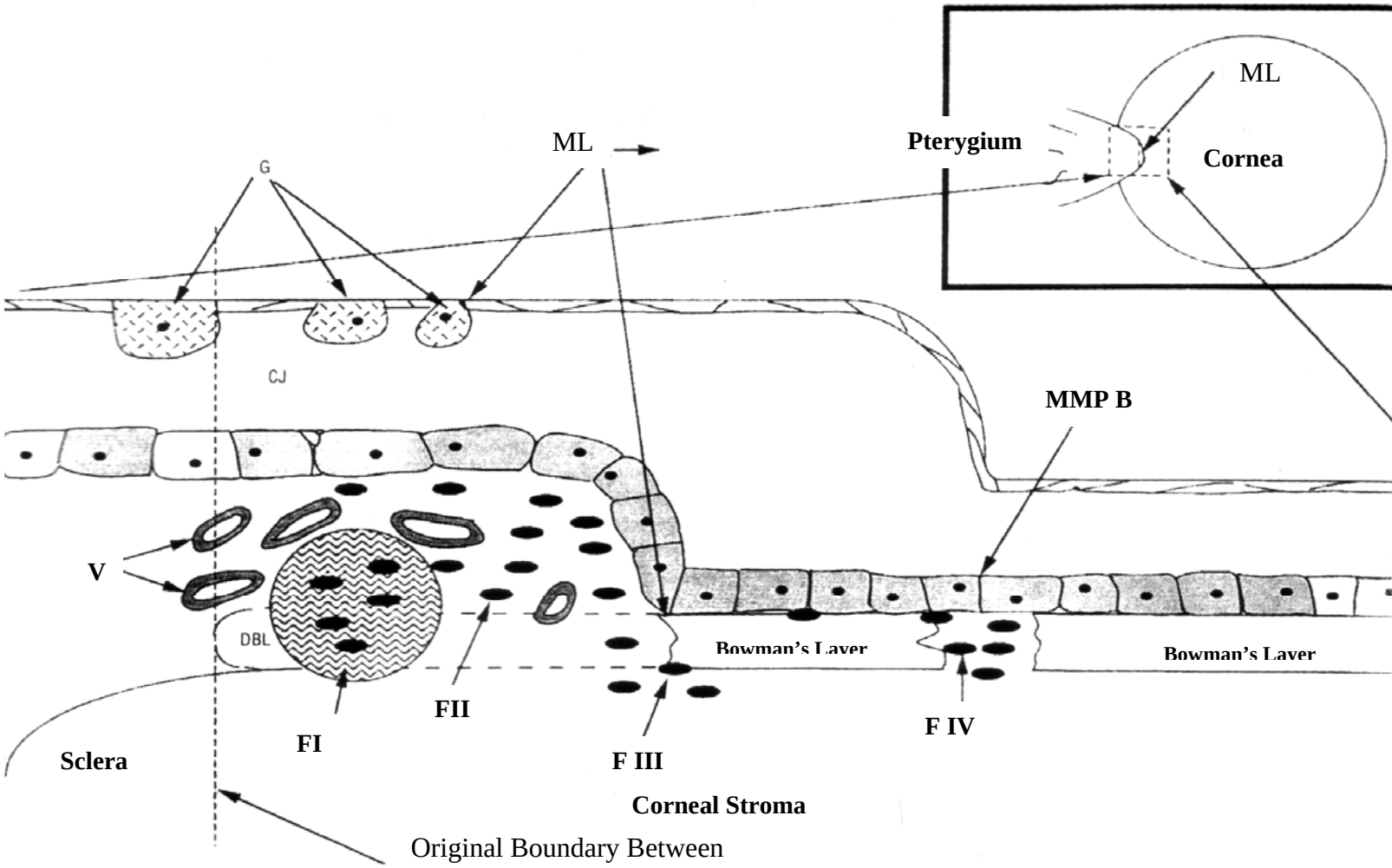
One theory is that tear film abnormalities cause drying of the cornea and conjunctiva, which in turn predispose to new growths. This theory has been supported by studies of geographical distribution, i.e., pterygia appear to occur more frequently in hot, dry climates

Ultraviolet irradiation been suggested as being a major environmental disposing factor in primary pterygia. Ultraviolet lightcauses mutations in both UV – sensitive TP53 tumor suppression genes in the parental limbal basal cells and the elastin gene of the fibroblasts in the limbal epithelium, mutations in other genes are progressively acquired. This allows the multistep development of pterygium and limbal tumor cells from P53 expressing limbal epithelial cells. These cells overlie pinguecula of the altered fibroblasts that make abnormal elastotic material and express various Matrix Metallo Proteins (MMPs).

Mutations in the TP53 gene family in the parental limbal basal cells also result in the overproduction of TGF-β by the pterygium cells. Excess TGF - β secretion by the pterygium cells can explain tissue changes and MMP expressions seen in pterygia

First, pterygium cells (altered limbal basal epithelial cells) produce elevated MMP -2, MMP – 9, MT1- MMP, and MT2 – MMP, causing dissolution of hemidesmosome attachments. Initially, the pterygium cells migrate centrifugally in all directions onto the adjacent and joined corneal, limbal and conjunctival basement membranes. Because of the TGF - β production of these cells, they have a reduced number of cell layers and no tumour mass is seen, resulting in an invisible tumour .

Later, after an entire group of altered limbal basal cells develop and all hemidesmosomes are dissolved under these cells, they migrate as a suppressed growth onto the cornea followed by conjunctival epithelium, expressing all 6 MMPs and contributing to the dissolution of Bowman's layer. In addition, TGF- β synthesized by the pterygium cells causes increased monocytes and capillaries within the epithelial and stromal layers



Pterygia pathogenesis.Corneal invasion by matrix metalloproteinase (MMP) expressing altered limbal epithelial cells an
CJ indicates cojuctiva with goblet cells infiltrated by pterygium cells :
DBL, dissolved Bowman's layer;
FI.fibroblasts making abnormal elastotic material (the pinguecula tumor) :
FII, fibroblasts making collagen and posssibly elastic materials;
FIII, fibroblasts making MMP-1 at dissolved edge of Bowman's layer .
FIV. fibroblasts (fibroblast islands) making MMP-1 at dissolved edges of Bowman's layer;
G, goblet cells;
ML, migrating limbus;
MMP B, MMP expressing altered limbal basal epithelial cells invading cornea and conjunctival epithelium;
V,l blood vessels (angiogeneisis)

அதிக நீர் - Watering of eyes

தினவு முண்டாம் - Itching of the eyes

“நடைபடி குணங் களெல்லாம் நாகமாம் படல மாமே.”

These are the clinical features of the Naga padalam

EVALUATION OF DISSERTATION TOPIC

Materials And Methods

The study on Naga padalam carried out at PG Noi Naadal OP department of Government Siddha Medical College Hospital Palayamkottai and at Aravind eye hospital Tirunelveli.

Case selection and supervision

20 Cases of similar clinical presentation of Naga padalam were taken from Government Siddha Medical College Hospital Palayamkottai and at Aravind eye hospital Tirunelveli.

Among them 20 cases of Naga padalam were selected and dissertation work was properly undergone by the author whose work was under close supervision of the Professor and Lecturer of PG Noi nadal department

Evaluation of clinical parameters

- *Detailed history of present and past illness*
- *occupational history*
- *Personal history*
- *Socio economic history*
- *Dietary habits*
- *Seasonal variations*
- *Environmental changes*

Above said parameters were carefully scrutinized by the author . the clinical signs and symptoms were taken from Aathiyar nayana vithi 500

Symptoms and Signs of Naga padalam

- *Irritation*
- *Redness*
- *Swelling*
- *Watering*
- *Grittiness*
- *Diplopia*

Study on siddha clinical diagnosis (Piniyarimuraimai)

- *Modes of investigaton by siddha methods*
- *Poriyaalarithal*
- *Pulanaalarithal*
- *Vinaathal*
- *Mukkutra nilaigal*
- *Udal kattu nilaigal*
- *Envagai thervugal*

MODERN INVESTIGATIONS

For further study about the disease the following investigations were undergone in all the cases.

Haematological Parameters

- *T C*
- *D C*
- *E S R*

BIOCHEMICAL FINDINGS

- *Blood urea*
- *Blood sugar (F / PP/ R)*
- *Serum creatinine*

URINE ANALYSIS

- *Alb*
- *Sugar*
- *Deposit*

SPECIAL AND SPECIFIC TEST

- *Histopathological findings*
- *Corneal Topography*
    - *Orb Scan*

OBSERVATION AND RESULTS

Results were observed with respect to the following aspects.

1. Age and Sex reference
2. Onset of the disease
3. Seasonal variations
4. Socio-economic status
5. Mukkuttram
6. Udal kattugal
7. Signs and Symptoms
8. Envagai thervugal
9. Laboratory Investigation
10. Culture test

Age reference

Sl. No	Age	No. of cases
1	30-50	1
2	50-70	14
3	70-90	5

Most of the patients under study belonged to Pithakaalam (34-66)

Sex

Sl. No	Sex	No. of cases
1	Female	6
2	Male	14

Eye affected

Sl. No	Eye	No. of cases
1	Right Eye	15
2	Left Eye	4
3	Both Eye	1

Seasonal Variations

Sl. No	Paruvakalam	No. of cases affected
1	Kaar	-
2	Koothir	-
3	Munpani	-
4	Pinpani	3
5	Ilavenil	12
6	Mudhuvenil	5

Socio-economic status

Sl. No	Class	No. of cases
1	upper	1
2	middle	6
3	Poor	13

Distribution of Mukkutram

Vadham

Sl. No	Vadham	No. of cases affected
1	Pranan	-
2	Abanan	-
3	Viyanan	10
4	Udhanan	-
5	Samanan	-
6	Nagan	15
7	Koorman	15
8	Girugaran	-
9	Thevathathan	
10	Dhananjayan	-

Pitham

Sl. No	Pitham	No. of cases affected
1	Anilam	-
2	Ranjagam	-
3	Saadhagam	-
4	Aalosagam	20
5	Praasagam	-

Kabam

Sl. No	Kabam	No. of cases affected
1	Avalambagam	-
2	Kilathagam	-
3	Pothagam	-
4	Tharpagam	20
5	Sandhigam	-

Udal Kattugal

Sl. No	Udal kattugal	No. of cases affected
1	Saaram	20
2	Senneer	20
3	Oon	-
4	Kozhuppu	-
5	Enbu	-
6	Moolai	-
7	Sukkilam / Sronitham	-

Clinical presentations

Sl. No	Clinical features	No. of cases affected
1	redness	4
2	irritation	2
3	Distorted vision	2
4	diplopia	1
5	Grittiness	3
6	Foreign body sensation	2

7	Swelling	3
8	Inflammed conjunctiva	3

Envagai thervu

SL.No	Envagai thervu:	No. of cases affected
1	Naa	-
2	Niram	-
3	Mozhi	-
4	Vizhi	20
5	Sparisam	-
6	Malam	-
7	Naadi Vadham Pitham Kabam Vadha kabam Pitha vadham Pitha kabam	 5 5 - 7 2 1

8	Neerkuri Neikuri (ring,sieve,pan, snake)	-

THEORITICAL VIEW OF DISSERTATION TOPIC IN MODERN ASPECTS

Embryology of Eye

The CNS is developed from the neural grove, which later invaginates to form the neural tube & runs down the dorsal surface of the embryo.

At either side of the anterior portion neural tube a thickening appears at early stage, which is known as optic plate.

The optic plate later on develops as optic vesicle. As the optic vesicle meets the surface ectoderm, optic cup is formed and the invaginated surface ectoderm is converted into the lens. The inner layer of the cup forms Retina . The mesoderm surrounding the optic cup differentiates to form the coats of the eye and the orbital structures such as

1. Anterior layer of iris
2. The angle of the AC (Anterior Chamber)

3. Main structures of cornea, Whereas surface ectoderm remains as corneal and conjuctival epithelium

The surrounding regional folds grow over infront of the cornea to form the lids

The eye is essentially formed from both Ectoderm and mesoderm

The ectoderm is of 2 types

i) Neural ectoderm derived from neural tube

ii) surface ectoderm derived from side of the head

(Embryology diagram)

OCULAR EMBRYOGENESIS

PERIOD AFTER CONCEPTION	**MAJOR MILE STONES**
3weeks	Optic groove appears
1Month	Hyaloid vessels develop
9th week	Migration of waves of neural crest
3rd month	AC forms
7th month	Myelination of optic nerve begins
8th month	AC angle forms
9th month	Retinal vessels reach temporal periphery
After Birth	Macular Region of the retina develops further

Primordia Tissue and its derivations

PRECURSOR	DERIVATIVES
Neural Ectoderm	Retina fibres of optic nerve smooth muscles of iris.
Surface ectoderm	Corneal & conjuctival epithelium lacrimal glands, Tarsal glands,lens.
Mesoderm	Extraoccular muscles, sclera, Iris
Neural crest	Orbit bones, ciliary muscle, sclera corneal stroma

BASIC HISTOLOGY

Four important tissue in our body are

A. Epithelia Tissue Disserve Tissue

B. Connective Tissue Muscle Tissue

C. Muscle Tissue

D. Nerve Tissue

Epithelia tissues

- Closely aggregated polyhendral cells with little intercellular substance
- Principle function of Epithelial tissues
    - Covering & lining surfaces (skin)
    - Absorption (intestive)
    - Secretion (glands)
    - Sensory (Neuro epithelium)
    - Contractive (myoepithelial)

General characters of Epithelium

No interstitial space

Presence of a Basal lamina

Specialization of the cell surface

- Microvilli
- Cilia and flagella

Connective Tissue

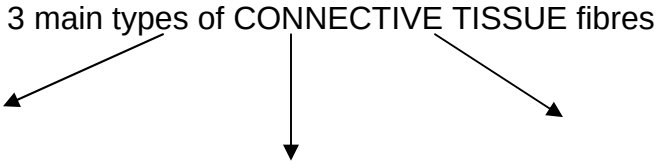
It is composed of fibres

Connective Tissue is characterised morphologically by the presence of several types of cells immensed in abudant intercellular material synthesised by these cells.

Richness intercellular material is one of the main characteristics of connective tissue

Connective Tissue is composed of fibres and matrix (amorphous inter cellular substane)

Cells , fibres, amorphous, substances are embedded.



Collageous Elastic Reticular

Connective Tissue makes up tendon, ligament and the aerolar tissue that fills the spaces between organs Bones & Cartilages.

Collageous fibres

Most numerous fibres in Connective Tissue

Collageous fibres are composed mainly of a sclero protein called collagen, whose principal acid is glycine, proline and hydroxyproline

Elastic fibres

Elastic fibres are easily distinguished from the collagenous fibres

Because elastic fibres are thinner and do not have logitudinal striations

Cells in connective tissue

- Fibroblasts
- Macrophages
- Mast cells
- Plasma cells
- Leukocytes

Lamina Propria

The connective tissue layer of the mucous membrane

HUMAN EYE HISTOLOGY

The Conjunctiva

The conjunctiva is a thin transparent membrane which covers the inner surface of each eyelid (palpebral conjunctiva) and the anterior part of the sclera (ocular conjunctiva) At the free margin of the eyelid the palperbal conjunctiva

becomes continuous with skin and at the margin of the cornea the ocular conjunctiva becomes continuous anterior epithelium of the cornea. When the eyelids are closed the conjunctiva forms a closed conjunctival sac.

The line along which palpebral conjunctiva reflected onto the eyeball is called the conjunctival fornix superior or inferior. The ducts of the lacrimal gland open to the lateral part of the superior conjunctival fornix. Lacrimal fluid keeps the conjunctiva moist. Accessory lacrimal glands are present near the superior conjunctival fornix

Conjunctiva consists of an epithelial lining that rests on connective tissue over the eyelids. This connective tissue is highly vascular and contains much lymphoid tissue. It is much less vascular over the sclera.

The epithelium linning the palpebral conjunctiva is typically ***2*** layered. There a superficial layer of columnar cells, and a deeper layer of flattened cells. At the fornix, and over the sclera, the epithelium is ***3*** layered there being an additional layer of polygonal cells between the two layers mentioned above. The three layered epithelium changes to stratified squamous at the sclerocorneal junction, to form as 'Cornea'

Histology of Organ systems – Leeson & Paporo

According to Leeson and Paporo

The conjunctival epiothelium varies with location . It consists of a basal layer of cuboidal cells a surface layer of cone - or cylindrical shaped cells and, particularly over eyelids, one to 3 intermediate layers of polygonal cells

Scattered among the epithelial cells one some mucus - secreting globet cells.

At the edge off the cornea, the conjunctival epithelium becomes the stratified squamous type.

Anatomy of the Eye

The wall of the globe is composed of the dense elastic supporting membrane.

The anterior part of the membrane is transparent - The cornea

The reminder is opaque - The sclera

The anterior part of the sclera is covered by a mucous membrane the conjunctiva which is reflected from its surface onto the lids

Cornea consists of 5 layers

1. Epithelium
2. Bowmans membrane
3. substantin preparia (or) stroma (90%)
4. Descemet's membrane
5. Endothelium

Stroma

Composed of regularly arranged thin fibrilis of collagen ensheathed by acid mucopoly saccharides and set in a ground substance.

Transparency of cornea is closely related to the regularity of the stornal components

The cornea is overlapped by sclera all round the periphery

The junction of 2 tissues is known as limbus [corneo scleral junction]

CORNEA

- highly supplied by Trigemial nerve
- No blood vessels
- It is nourished by conjunctival vessels at the periphery & by the aqueous humour

Inner aspect of the sclera

i) Highly vascular uveal tract is concerned cheifly with nutrition of the eye

ii) Nervours layer, - Retina

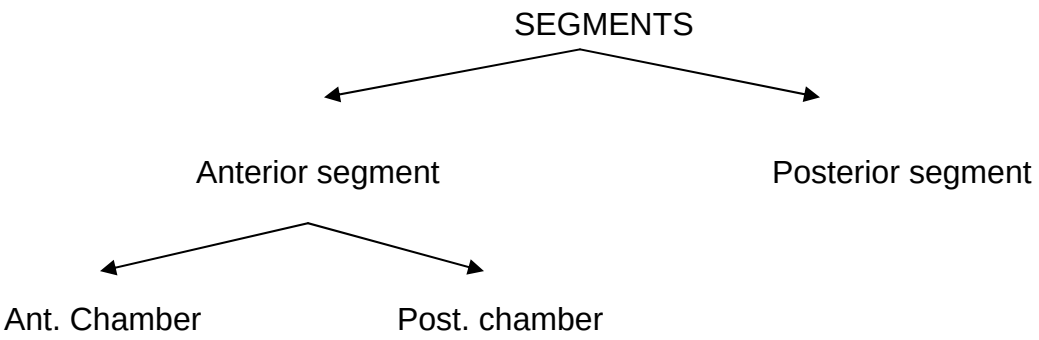
UVEAL TRACT

Consists 3 parts

i) Posteriorly - Choroid

ii) Anteriorly - Iris

iii) Middle - Ciliary body & Ciliary process



Anterior chamber

The space behind the cornea and infront of the pupil

- It is filled with anterior chamber humour
- Its peripheral recess is known as Angle of Anterior chamber

At this part of corneo scleral wall there is circular venous sinus, sometimes broken up into more than one luman called canal of schlemm, which is useful in drainage of Aqueous humour

At the periphery between the recess of Ac and canal of schlemm, there lies a loosely constructed mesh work of tissues, called ‘ Trabecular Meshwork’

Diagram – 1.13 PPg 17

IRIS

It is thinnest at its attachment the ciliary body

- composed of stroma, usually pigmented but largely unpigmented in blue rides
- The two muscles which control the movements of iris are

a) Shincter pupillae - Circular bundle running radially to the pupillary margin

b) Dilator pupillae - Arranged medialy near the root of iris

Iris richly supplied by sensory nerve fibres of Trigeminal nerve.

sphiacter pupillae :- motor nerve fibres, nerve supplied by oculomotor nerve fibre

Dilator pupillae :- motor nerve fibres are supplied by cervical sympathetic chain.

CILIARY BODY

The chief mass of ciliary body composed of unstriped muscle fibres, the ciliary muscle

The inner surface of the ciliary body is divided into 2 region

Ant. part : Pars plicata

Post. part : Pars plana

The ciliary body extends backwards as the serrata at point which the retina proper begins abruptly

RETINA

The innermost and sensitive layer of the eye /. The retina consists of number of layers, formed by 3 group of cells

- Visual cells
- Bipolar cells
- Ganglion cells

Rodes and cones, are the end organs of vision

At the posterior pole which is situated about 3mm to the temporal side of the optic disc, a specially differentiated spot is found in the retina the fovea centralis depression or pit, where only cones are present.

The fovea is the most sensitive part of the retina and is surrounded by the small area macula lutea.

The place where optic nerve emerges in the retinal layer is said to be optic disc

LENS

- Bioconvex mass of peculiarly differentiated epithelium
- Embryologically develops from surface ectodermi
- Central nucleus of the lens artists of the oldest cells and periphery consists of youngest cells

Coverings

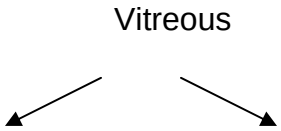
The lens is surrounded by a hyaline membrane, the lens capsule, which is thicker over the anterior than the posterior

Behind the lens is the large vitreous chamber containing the vitreous humour

This is a jelly like material chemically nature of an intert – gel containing a few cells and wandering Leucocytes

The vitreous body is attached anteriroly to the posterior lens surface by the ligament of wiegert.

Posteriorly the vitreous body is attached to margin of optic disc, macula and larger blood vessels



Primary Vitreous (Concetrated in centre)

Secondary Vitreous (Concentrated in periphery)

PHYSIOLOGY OF EYE

Formation of intraocular fluid

- Ultrafiltration
- diffusion
- secretion

The secretory process is powered by the metabolic activity of the cells of the ciliary epithelium and probably accounts for 95% of the total quantity of aqueous humour.

It is rich in sodium & contains Ascorbic acid

The blood – Aqueous barrier, separates the blood from mixing with Aqueous humour

Contents

- ❖ Consists of a dilute solution which is similar to that of plasma
- ❖ However , the lactic acid is in Aqueous humour is sexless when compared to blood, due to the formation as an end - product of the metablism of lens

CIRCULATION

Necessary for both Metabolic purposes and to regulate the intraoccular pressure

Ciliary region } - formation of Aq.humour

↓

Anterior Chamber - Via pupil

↓

Trabecular meshwork (Situated near by the angle)

↓

Schlemm channel

↓

Collector channel

↓

Aqueous veins

↓

Episcleral veins

Secondary Exit

Uveoscleral outflow

↓

Ciliary body

↓

Choroid tissue

↓

Suprachoroid tissue

↓

Episcleral tissue

Intraoccular pressure

Prolonged changes in intraoccular pressure are essentially caused by 2 factors

i) Alteration in formation of Aqueous

ii) Alteration in the resistance to outflow

which may result in glaucoma.

Factors determining prolonged changes in the intraoccular pressure

i) Variations in hydrostatic pressure in capillaries

ii) An increase in permeability of the capillaries

iii) A change in the osmotic pressure of the blood

iv) Volumetric changes

v) A blockage in the circulation of aqueous humour.

Physiology of conjuctiva

It is thin mucous membrane lining the surface of the eye and eyelids and is divided into 2 portions, palpebral and bulbar

The folds uniting the palpebral and bulbar protions are the fornices.

The palperable conjunctiva is said to commence at the anterior margin of the edge of the lid.

There are 2 layers of epithelium over the palpebral conjunctiva. The epithelium becomes gradually thicker from the fornices to the limbus forming a stratified non – keratinized epithelium near the corneal margin

Below the epithelium is a adenoid layer consisting of loose connective tissue containing Leucocytes. Below the adenoid alayer there is dense fibrous layer passing insensibly into the underlying tissue either lid or sclera

The palpebral conjuctiva is firmly adherent to the tarsus, while the bulbar portion is freely movable over the sclera except close to the cornea

Lubricating Factors of conjuctiva

Tear film :

1. Mucinous layer - covering conjunctiva and cornea secreted by Globet cells (underneath layer).
2. Aqueous layer - secreted by lacrimal and accessory conjuctival glands
3. Lipid layers - meibomian glands limits evaporation of tears. (Superficial layer)

The triple layered sand which maintains a smooth occular surface and the oxygen dissolved in it from the atmosphere nourishes the corneal epithelium.

The tears also help to waste off debris and play a role in immunilogical protection of the occular surface with the help of the enzyme lysozyme and secretory immunoglobulin. A

The “Conjuctival sac” is never free from organisms, but because of its relatively low temp. evaporation of lacrimal fluid and moderate blood supply, bacteria do not readily propagate themselves.

PATHOLOGY OF PTERYGIUM

A pterygium (Greek.pterygos meaning “wing”) is a degenerative condition of subconjunctival tissue, which proliferates as fibro vascular granulation tissue to invade cornea, destroying superficial layers of stroma and Bowman’s Membrane, the whole is covered by conjunctival epithelium.

It is typically raised, ranging from pearly white to pink in color, and triangular in shape with the apex, or head, on the cornea and characteristically presenting at the three and nine o’ clock positions at the limbus.

Pterygium commonly grows from the nasal side of the sclera because the cornea acts as a lens for sunlight on the medial / nasal side but not on the lateral / temporal side, owing to the shadow cast by the nose. Pterygium is due to localized limbal stem cell deficiency and the scattered light incident at the temporal limbus or temporally is focused at the nasal limbus thus damaging the nasal basal limbal cells and explaining the increased preponderance of nasal pterygium.

Atypically located pterygia may imply other etiologies. According Goldman and Kaufman pterygium presenting in an oblique axis suggest an alternate diagnosis, such as Terrien’s marginal degeneration(1).

Pseudopterygia are common inflammatory adherences of the conjunctiva to the cornea in eyes damaged by chemicals, heat or trauma. They can appear

anywhere along the nasal or temporal limbus and progress onto the cornea at an oblique axis, bridging the limbus so that a probe can be passed underneath.

Pterygia can vary from small, atrophic quiescent lesions to large, aggressive, rapidly growing fibro vascular lesions that can distort the corneal topography and in advanced cases, they can obscure the optical center of the cornea

An advancing pterygium can produce marked changes in refractive state and curvature before entering optical zone which can cause visual impairment(corneal astigmatism)

SEX INCIDENCE

Pterygium most commonly affects the **senile** age group of **male** personalities whose occupations are mostly in

1. Hot weathers
2. Windy areas
3. Fishermen
4. Sailors
5. Farmers and
6. Out door Field workers (Constructors, Engineers)

THE DEGENERATE CELL

Condition of Degenerative cell

Although cell degeneration and death are normal at the end of the cells life span they may also be an indicator of injury.

Cell degeneration is significant to the cytopathologist because of its potential to be misinterpreted as malignancy.

During degeneration the nucleus may become swellen and portions of the cytoplasm lost . This imparts the impression of an elevated nuclear to cytoplasmic ratio.

Also during degeneration the chromatin may begin to clump and become hyperchromatic (Karyorrhexis) and the nuclear membrane may become wrinkled

Condensation of the chromatin (Karyopykonosis) can be misinterpreted as ink – dot nuclei present in some cells from squamous cell carcinoma

An eg. of the cell degeneration that may be present in the probasal cells in vaginal atrophy

CAUSES OF PTERYGIUM

- Prolonged UV exposure
- Residence at Tropical and equatory areas
- Degenerative lesion
- Blue and U.V rays
- Water man (Fisher mans&sailors)I
- High light reflectivity, including from sand and H_2O
- Inflammation such as peripheral corneal ulceration
- Secondary to previous trauma

SIGNS OF PTERYGIUM (IN CHRONOLOGICAL ORDER)

1. A small grey corneal capacity develops near the nasal limbus,
2. The conjunctiva overgrews the opacity and progressively encroaches onto the cornea in a triangular fashion.
3. A deposit of iron (stocker line) may be seen in the corneal epithelium anterior to the advancing head of the pterygium

PTERYGIUM CAN BE CLASSIFIED INTO FIVE GROUPS:

1. Actively growing pterygium
2. Slowly growing pterygium
3. Stationary pterygium
4. Fleshy pterygium
5. Atrophic pterygium

GRADING OF PTERYGIUM:

Grade I	:	Crossing Limbus
Grade II	:	Midway between limbus and pupil
Grade III	:	Reaching upto pupillary margin
Grade IV	:	Crossing pupillary margin

Complications of pterygium

1. Distortion or reduction of central vision due to involvement of visual axis or induced astigmatism and disruption of the precorneal tear film.

2. Redness
3. Chronic Irritation
4. Chronic scarring of conjunctiva and cornea
5. Extensive involvement of the extra ocular muscles may restrict occular motility and contribute to diplopia. Scarring of the medial rectus muscle is most common cause of diplopia in patients with pterygium
6. In-patients with significantly elevated pterygia focal drying and subsequent thining of the adjacent cornea can occur on rare occasion.

Histopathology:

The histopathologic appearance of pterygium is characterized by 3 basic elements

First element is the epithelial covering of atrophic conjunctiva which overlies a second element, which is a bulky mass of thickened hypertrophied, degenerated Numerous theories have been postulated for the pathogenesis of pterygia, including choline deficiency , inflammation degeneration tissue angiogenesis factor; changes in the elastic tissue and immune mechanisms.

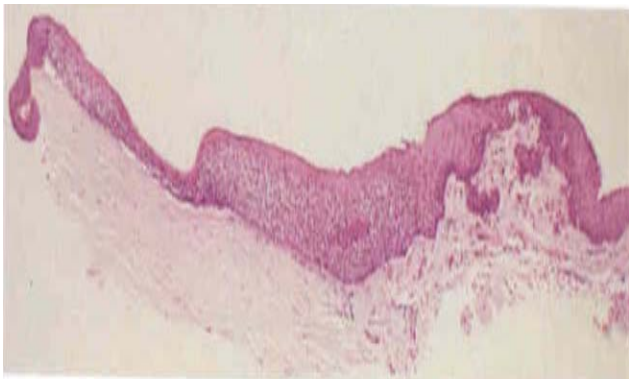
One theory is that tear film abnormalities cause drying of the cornea and conjunctiva, which in turn predispose to new growths . This theory has been supported by studies of geographical distribution, i.e., pterygia appear to occur more frequently in hot, dry climates.

Ultraviolet irradiation been suggested as being a major environmental disposing factor in primary pterygia. Ultraviolet light causes mutations in both UV – sensitive TP53 tumor suppression genes in the parental limbal basal cells and the elastin gene of the fibroblasts in the limbal epithelium mutations in other genes are progressively acquired. This allows the multistep development of pterygium and limbal tumor cells from P53 expressing limbal epithelial cells. These cells overlie pinguecula of the altered fibroblasts that make abnormal elastotic material and express various Matrix Metallo Proteins (MMPs).

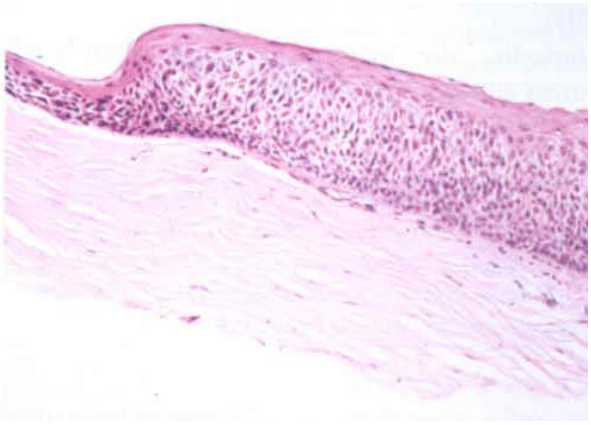
Mutations in the TP53 gene family in the parental limbal basal cells also result in the overproduction of TGF-β by the pterygium cells. Excess TGF - β secretion by the pterygium cells can explain tissue changes and MMP expressions seen in pterygia

First, pterygium cells (altered limbal basal epithelial cells) produce elevated MMP -2, MMP – 9, MT1- MMP, and MT2 – MMP, causing dissolution of hemidesmosome attachments. Initially, the pterygium cells migrate centrifugally in all directions onto the adjacent and joined corneal, limbal and conjunctival basement membranes. Because of the TGF - β production of these cells, they have a reduced number of cell layers and no tumor mass is seen, resulting in an invisible tumour. Later, after an entire group of altered limbal basal cells develop and all hemidesmosomes are dissolved under these cells, they migrate as a suppressed growth onto the cornea followed by conjunctival epithelium, expressing all 6 MMPs

and contributing to the dissolution of Bowman's layer. In addition, TGF- β synthesized by the pterygium cells causes increased monocytes and capillaries within the epithelial and stromal layers. connective tissue which has abnormal collagen. The third element is blood vessels, which are dispersed among the hypertrophied collagen fibers. Histopathology of the abnormal collagen in the area of elastotic degeneration shows basophilia with hemotoxylin and eosin stain.



Basophilic degeneration of the conjunctival substania propria



Invasion of the cornea

On the corneal side immediately in front of the head of the pterygium, the fibroblasts penetrates the cornea between Bowman's layer and the basement membrane of the overlying epithelium and these fibroblasts account for the gray zone or cap and this is thought to prepare a path for fibro vascular tissue to penetrate the cornea.

COMMON SITE OF PTERYGIUM

IS

'INTER PALPEBRAL FISSURE'

The main reasons for the occurence of pterygium in interpalpetral fissure is

a) The U.V rays exposure is more predominant in the palpebral fissure area, whereas , the occurence is nil in upper and lower part of eye which is due to the closure by eyelids, which prevent the UV rays exposure

b) The atmospheric air exposure to the eye is more in the palpebral fissure and the chance of being dried is more when compared to superior and inferior aspects which are under constant cover by eyelids.

Difference between progressive pterygium and stationary peterygium or progressive
or
Progressive pterygium
or
Atrophic pterygium

Sl.No	Progressive Pterygium	Stationary Petrygium
1	Thick fleshy and vascularised	Thin, pale or white membrane
2	Grey infiltrate may be seen in front of the head	Not seen
3	Younger age group	Older age group

Differences between True pterygium and pseudo pterygium

Sl.No	True pterygium	pseudo pterygium
1	Age usually above 40 years	Any age
2	Present in palpheral fissure region	Any where around the limbus
3	Probe cannot be passed under the pterygium	Probe can be passed under the pterygium
4	Initially it is always progressive	Always stationary
5	No such history	There may be past history of sever conjunctivitis , chronical burns or other injuries

DIFFERENTIAL DIAGNOSIS OF PTERYGIUM

1. PINGUECULA

According to Harshmohan

Pingueacla is a degenerative condition of the collagen of the bulbar conjuctiva

Clinically the condition appears as raised yellowish on the

i) interpalpebral

ii) Bulbar conjunctiva of both eyes

Histologically

Pinguecula

- elevated, white to yellow in colour horizontally oriented
- less transparent than normal conjunctiva
- current information however suggest that pinguecula does not progress to pherygium and that the two are distinct disorders

Basophilic degeneration of the sub – epithelial collagen of conjunctiva.

Mututions of p53 gene

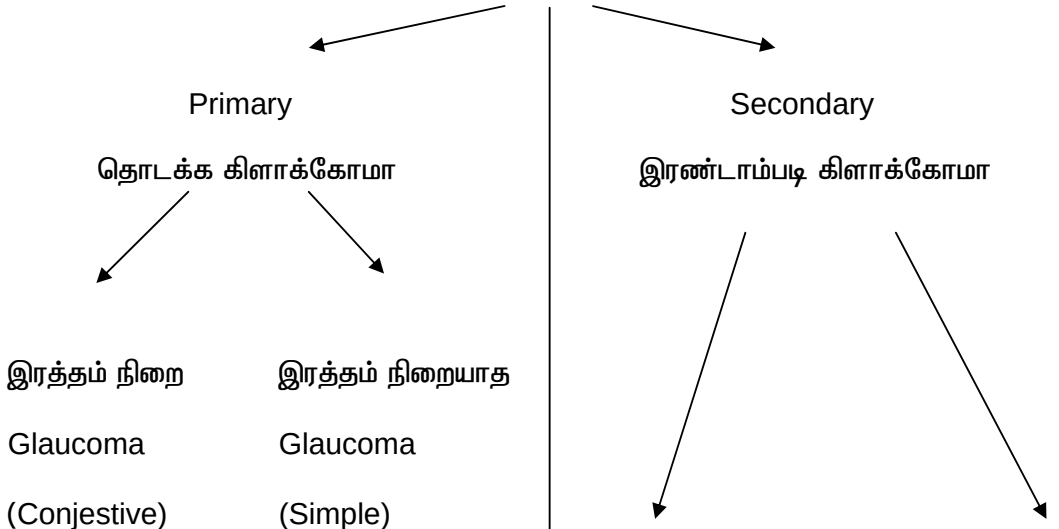
Conjunctival intraepithelial neoplasin may be difficult to differenciate from keratinization of pingnecula

Degenerative conditions increase in prevalence with increasing age

- Due to chronic exposure to UV rays
- As a result of past inflammation
- of long term toxic effects
- of environment expose
- or by ageing itself

2. GLAUCOMA

கண்ணீர் அழுத்த நோய் - Glaucoma



↓

நோயாளிக்கு விளக்குச் சுடரைப் பாக்கும் போது அவற்றைச் சூழ்ந்து வானவில் போல் நிறங்கள் தோன்றும்.

Symptoms

வலி இல்லை

கடுமையான தலைவலி

கண்ணில் நோவு

Glioma, (Melamoma)

↓ ↓

Common in paediatrics

நடுத்தர வயதினரிடம் காணப்படும்

Hereditary

குழந்தை கண்

வாந்தி

பார்வை மங்கல்

பூனைக்கண் போல்

மஞ்சள் நிறமாய் இருக்கும்

3. TUMOURS OF THE CONJUNCTIVA

I. Conjunctival lymphoid tumours

Lymphoid tumours of the conjunctiva appear as salmon – coloured mass within the fornix or on the surface of the globe

II. Squamous papilloma

Squamous papilloma arise from the conjunctiva epithelium in diverse clinical settings. In children they are often bilateral and recur after excision .

In adults papillomas are usually solitary and unilateral.

III. Dysplasia and intraepithelia Neoplasia

IV. Squamous cell carcinoma

Conjuctival squamous cell carcinoma usually grows as a papillary exophytic mass. Cellular atypia occurs throughout the entire epithelial thickness, and neoplastic cells extend into the underlying stroma either individually or in nests

V. Spindle cell CA

Rarely arises in conjunctiva but there is aggressive clinical courses than the usual well – differentiated conjunctival squamous carcinoma

Clinical features of conjuctival disorders

1. Redness
2. Stickiness
3. Foreign body sensation
4. Grittiness
5. Lacrimation
6. Photophobia
7. Burning sensation
8. Dryness of eye.
9. Vision is generally normal but blurring occur.
10. Hyperaemia

10. a) Acute : mainly due to foreign body in conjunctival sac

10 .b) Chronic: Concretions, would cause acute and recurrent infections.

Dusty, ill-ventilated rooms or exposure to heat or dryness

10. c) Non conjuctival cause

- Excessive Alcohol take
- High fever

11 . Conjuctival discharge

Excess secretion in conjuctival disorders and is prominent feature in conjunctivitis

11. a) Mucoid / Watery discharge - viral conjuctivitis

11. b) Mucopurulent / Purulent - Bacterial

11. c) Ropy / Stringy mucoid discharge - Allegic

12.Conjuctival Inflammatory reaction

12. a) Follicles

12. b) Papillae

12. c) Granulomas

Conjunctival changes in systemic disease

1. Anaemia

2. Jaunidce

3. Rheumatoid Arthritis

4. Allergic Conjuctivitis

5. Conjuctival ‘ Kaposi Sarcoma

6. Atopic kerato conjunctivitis - Br.Asthma

7. Steven - johnson syndrome - Dry Eye

8. Cicatrical phemphigoid - Dermal phempigus

9. Conjunctival Epithelial Melanocytosis - Generalised

10. Rosaceae - kerato - conjuctivities

11. Sjogren’s syndrome

12. Systemic Lupus Erethematous

13. Poly Arterial nodosa

CICATRIAL PHEMPHIGOID

Cicatrial phemphigoid is an idioptathic sub - epidermal, subepithelial blistering and scarring autoimmune (Type II hypersensitivity) disease characterised by autoantibodies that bind to basement membrane. The condition usually presents in late middle age and affects women more commonly than men.

Sign & symptoms

- Dry eye

- ❖ symblepharon
- ❖ Secondary keratopathy

Steven - Johnson syndrome

Acute, severe, muco – cutaneous, blistering disease , due to abnormal immunological reaction

Most common precipitating factor is

drug hypersensitivity (or)

viral infection

Basic lesion is an acute vasculitis of skin and mucous membrane and conjunctiva is involved in 90% of cases

Parinand Occuloglandular syndrome

Rare condition of conjunctiva associated with systemic cat scratch disease (fever) and tularaemia

Causative orgainsm

Bortonella henselae

Hepatomegaly

&

Spleemomegaly

Pneumonia

Osteomyelitis

Diabetes

Conjunctival Anneurysms are common in diabetes

Sub - Conjunctival Heamorrhage is common in

- Wheeping cough
- H.T
- Bleeding diasthesis

Conjunctival Hypothesia

(Decrease in sensation)

Common in Sys . Disorders like

1. Leprosy
2. Dm
3. Cranial nerve palsyies

Peri-limbal conjunctival vitilliago

Seen in cases of systemic disase such as

i. Vogt - Koyamagi - Harada syndrome

Neurological & skin ailment features are seen.

Blue eye - Osteogenesis imperfecta

Disorder of connective tissue especially in ‘ Bone & Eye’

The connective tissue in sclera is underdeveloped,, so

Scleral discoloration

Alkaptonuria (ochronosis)

Brow – black discolouration at the insertions of horizontae recti and pigmentation of the pinnae.

Haemochromatosis

Rusty – Brown discolouration of conjunctiva

DISCUSSION

Interpretation of Siddha Parameters

The observed results and other entities that have been studied are discussed under the following headings

Age & Sex Distribution

The most common affected sex is male

Due to chronic exposure to sunlight & UV rays the male have high risk of being affected by pterygium (Naga padalam)

The incidence is high in senile age group, Because the degenerative process is common in senile age group due to altered , chemical values in body

Occupation

Pterygium is more among , Farmers and outdoor workers, due to the longer exposure in sunlight

Socio Economic status

Low class people are most commonly affected due to the work in sunlight exposed areas and poor preventive mesures to safeguard the eyes

Seasonal Variation

The Ilavenil (Chithirai & Vaikasi) & Muthuvenil (Aani , Aadi) Seasons are more prone to ocurence of Nagapadalam, due to hot temperature and windy climate

Mukkutra Verupadugal

Vatham

Due to the elveated level of Vatha Naadi sheep is disturbed and the potency or stamina of 5 sense organs is affected or decreased.

Nagan & Koorman are affected – pre corneal tear film is affected

Pitham

Main function is to maintain normal issue

Due to the elevated pitha humour decreased duration of sheep & eyes (Conjunctiva & Sclera) Urine , Motion and Skin colour chages occur.

Alosaga pitham - affected (Diminished vision & Corneal astigmatism)

Kabam

- Tharpagam is affected
- Burning sensation , Grittiness & Irritation is most common due to increased kabam

Udal Thathukkal

Saram - Affected (Tiredness of Body & Soul)

Seneer - Affected (Generalised weekness of body & Diminished vision)

Koluphu - Affected (Due to improper lubrication of Eye)

INTERPRETATION OF ENVAGAI THERVUGAL

Naa : 'Pale' - Due to Anaemia

Niram : Affected ' Pale colour of Skin '

Vizhi : Affected - Diminished vision due to corneal opacity

Neikuri: Oil spreads like ring, snake, sieve & pan

INTERPRETATION OF ALLIED PARAMETERS

The Eye examination of the 20 cases reveal that

- Lids : Normal
- Anterior Chamber : Normal Depth
- Iris : Normal colour in treatment
- Pupil : Acting
- Occular movements : full
- Duct : Free
- Tension : Normal

All the 20 patients have changes in cornea and conjunctiva

The cornea is Hazy, ulcerated & Encroached by head of pterygium in the patients according to the level of lesions

All the 20 patients have altered conjunctiva in the affected eye.

Some patients have

- 'inflammed' conjunctiva
- Muddy conjunctiva

According to the level of lesions

Most of the patients have diminished vision and distorted vision due to the pterygium pulling of corneal curvature.

HIGHLIGHTS OF DISSERTATION TOPIC

Nagapadalam is one of the main Eye disease explained by Agathiyar in his Agathiyar Nayana vithi – 500

The clinical features mentioned by Agathiyar in Nagapadalam Topic

1. Redness
2. Epiphora
3. Itching
4. Grittiness.

Mukkuttra Verupadugal, i.e. three humuoral changes play major role in the development of disease. Most of the Eye disease are formed by alteration of pitha humour

The altered pitha humour in eye is manifested first followed by degenerative condition of eye due to altered kabam.

In this disease (Naga Padalam) First affected humor is pitham, and next is kabam.

In Nagapadalam the first affected sight is conjunctiva of the eye.

Due to increased exposure of UV rays, the matrix metalloprotinases in the conjuctival limbal cells, and by activation of fibroblasts the , conjunctiva develops into an filmy layer, which encroaches the epithelial i.e. outer layer of cornea.

By days, it infiltrates to Bowman's membrane and later on to substantia propria (Stroma) which produces marked changes in refraction and cause visual impairment i.e corneal astigmatism

UV rays is the one of the etiological factor. When the changes are obivious itching is marked and watering , redness are present in eye.

At last the author comes to conclusion that features said above are closely related to the Eye disease Naga padalam.

Conclusion

The lines that were discribed in Naga Padalam of Agathiya Nayana Vithi" explains the clinical features of milky white capacity of the corneadue to the filmy growth on the sclerotic coat of eye.

As per "Agasthiyar Nayana Vithi" the signs and symptoms of "Naga Padalam", are studied in all the cased which have selected. These were examined and analysed thoroughly by siddha and modern aspects.

All the pictures in siddha parameters show chages in the physical constituments, three humour, seasonal variations and Envagai Thervugal.

Naga Padalam is comfirmend by "Histopathological examinations" and by "Orbscan" the severity of lesions are noted.

The slit lamp examination shows the external lesions of conjunctiva and cornea.

If the aliment is not treated properly, it leads to complete closure of optical axis by the iterygium.

Also, headache and distored vision, will be the intial problem.

Later on it may leads complete less of vision and continous irritation.

Early intervention, either by medical or surgical the rest of vision.

The modern parameter play a important rate in the diagnostic purpose.

Finally, Naga padalam has very good prognotsis if treated properly and good adaptation of medical advice mentioned in siddha system of medicine.

P.G.RESEARCH CENTRE

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NOI NADAL BRANH – V

Annexure – 1

Name of the medical unit	:		
I.P.No./OP.No	:	Nationality	:
Name	:	Religion	:
Age	:	Date of Admission	:
Sex	:	Date of Discharge	:
Occupation	:	Diagnosis	:
Income	:	Results	:
Address	:	Medical Officer	:

Complaints & Duration	:
H/O Present illness	:
H/O Previous illness	:
Personal History	:
Family History	:

Clinical Examination – Siddha aspect

General Examination

Yakkai :

Gunam :

Irukkai nilai :

Padukkai nilai :

Suvasa enn :

Kuruthi azhutham :

Special Examination

Pori / Pulan

Mei - Sensation :

Vaai - Taste :

Kan - Sight :

Mooku - Smell :

Sevi - Hearing :

Kanmendriyam / Vidayam

Vaai	-	Vasanam	:
Kai	-	Dhanam	:
Kaal	-	Kamanam	:
Eruvai	-	Visarkam	:
Karuvai	-	Anantham	:

Paruvakalam

Karkalam	:
Koothirkalam	:
Munpanikalam	:
Pinpanikalam	:
Elavernirkalam	:
Mudhuvenirkalam	:

Utkayam / Athakayam

Puyam	-	Foreran	:
Sayam	-	Arm	:
Kaal	-	Leg	:

Paatham - Feet :

Uyir thathukkal

1)Vatham

Pranan :

Abanan :

Viyanan :

Uthanan :

Samanan :

Nagan :

Koorman :

Kiruharan :

Deathathan :

Dhananjayan :

2) Pitham

Anilam :

Ranjagam :

Pirasagam :

Aalosagam :

Sathagam :

3) Kabham

Avalambagam :

Kilethagam :

Pothagam :

Tharpagam :

Santhigam :

Ezhu Udal Thathukkal

Saaram :

Senneer :

Oon :

Kozhuppu :

Enbu :

Majjai :

Sukkilam / Suronitham :

EN VAGAI THERVUGAL

MEI KURI (SPARISM)

Examination of the Skin

Inspection

Colour of the Skin

Eruptions

Haemorrhages

Ulcers, excoriations, fissures etc.

Boils, carbuncles, scars, trophic changes etc.

Eruption

Types of rashes

Maccular

Roseolar

Erythematous

Papular

Pustular

Lenticular

Nodular

Vesicular

Bullous

Wheals

Burrows

Blackheads

Plaques

Scales

Ulcers

Duration

Mode of onset

Associated pain

Size and pain

Nature of the floor

Character of the edge

Discharge

Tenderness

Surrounding skin

Lymphnodes

Pruritis

Infestation

Skin diseases

Metabolic & endocrine

Hepatic disorders

Renal diseases

Blood diseases

Examination of the hair

Falling of the hair

Patchy loss of hair

Loss of hair in temporal region

Characteristic features of the hair

Sweat

Physiological / Pathological

Lymphglands

Site

Shape

Size

Consistency

Mobility

Tenderness

Examination of the nails

Examination of the Head, neck, Face

Skull

Size

Shape

Face

Eyebrows

Eye lids & Eye lashes

Nose

Lips

Ears

Neck

Examination of the Chest

Shape and Size

Movements

Rate of respiration

Breath Sounds : Normal / Abnormal

Heart Rate & Sounds

Examination of the Breast

Examination of the Abdomen

Shape

Size

Examination of the Genital Organs

Examination of the Extermitis

Upper & Lower Limb ***:*** General Examinations

Special Examinations

Tests for Tone, Power & reflex

NIRAM

Colour of the skin, Hair, Nail, Teeth, Tongue, Gums

Sputum – Normal / Abnormal

MOZHI

Larynx

Congenital

Acquired

Traumatic

Tongue

Congential Abnormalities

Ear ***:*** Deafness

Palate ***:*** Cleft palate

VIZHI

Examination of Eye

Visual acuity

Visual field

Colour sense

Pupil

Size

Equality

Regularity

Reaction of light accommodation

NAA

Colour

Size

Shape

IRU MALAM

Malam

I. Macroscopic Examination

Amount

Colour

Odour

Consistency

Abnormal Constituents

II. Microscopic Examination

III. Chemical Examination

Siruneer

Quantity

Colour & Transparency

Specific Gravity

Deposit

NAADI

The state of vatha, pitha and kabha naadi.

Examination of Pulse & its Indication

Rate

Rhythm

Volume

Force &

Character

Noi kanippu

MODERN ASPECTS

ANNEXURE – II

General Examination

Consciousness	:	General Appearance	:
State	:	Nourishment	:
Weight	:	Facies	:

Height	:	Jaundice	:
Skin Changes	:	Engorged venis	:
Anaemia	:	Clubbing	:
Cyanosis	:	JVP	:
Pedal Odema	:	Koilonychia	:
Abdominial distension	:	Brittle Nail	:
Congential anomally	:		
Lymphadenopathy	:		

Pluse	Rate	Rhythm	Volume	Character

		(Rt)	(Lt)
Blood Presure : mm/Hg	Upper limb	-------	-------
	Lower limb	-------	-------

Respiratory Rate:

Systematic Examination

Cardiovascular System :

Respiratory System :

Gastro intestinal System :

Central nervous System :

Laboratory Investigations

Blood

TC	:	MCV	:
DC: P, L, E, B, M	:	MCH	:
Hb%	:	MCHC	:
ESR		Serum Protein	:
1/2hr	:	Serum Cholestrol	:
1hr	:	Blood Urea	:
RBC Count	:	Serum Iron	:
Platelet Count	:	Serum Ferritin	:
Reticulocyte Count	:	Serum TIBC	:
PCV	:	Peripheral Blood Smear	:

Motion

Ova :

Cyst :

Occult blood :

Urine

Albumin :

Sugar :

Deposits :

Bile Salt :

Bile Pigment :

Special Investigation

Barium meal and endoscopy :

Bone marrow examination :

Skiagram :

Sputum for AFB :

Radiological investigation :

Ophthalmoscopic examination :

E.C.G.

Etc. ***:***

Case Summary ***:***

Fate of the Disease ***:***

Line of treatment ***:***

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THEORITICAL VIEW OF DISSERTATION TOPIC IN MODERN ASPECTS

Embryology of Eye

The CNS is developed from the neural grove, which later invaginates to form the neural tube & runs down the dorsal surface of the embryo.

At either side of the ant portion of neural tube a thickening appears at early stage, which is known as optic plate

The optic plate later on develops as optic vesicle. As the optic vesicle meets the surface ectoderm, optic cup is formed and the invaginated surface ectoderm is converted into the lens. The inner layer of the cup forms Retina . The Mesoderm surrounding the optic cup differentiates to form the coats of the eye and the orbital structures such as

1. Anterior layer of iris
2. The angle of the AC
3. Main structures of cornea, Whereas surface Ectoderm remains as corneal and conjuctival epithelium

The surrounding regional folds grow over tinfront of the cornea to form the lids

The eye is essentially formed from both Ectoderm and mesoderm
The electoderm is of 2 types

i) Neural Ectroderm derived from Neural tube
ii) surface Ectoderm derived from side of the head

(Embryology diagram)

OCULAR EMBRYOGENESIS

PERIOD AFTER CONCEPTION	MAJOR MILE STONES
3weeks	Optic groove appears
1Month	Hyaloid vessels develop
9th week	Migration of waves of neural crest
3rd month	Ac forms
4th month	Hyaloid vessels regress retinal vasculature begins
7th month	myelination of optic nerve begins
8th month	Ac angle forms
9th month	Retinal vessels reach temporal periphery

After Birth	Macular Region of the retina develops further

Primordia Tissue and its derivations

PRECURSOR	DERIVATIVES
Neural Ectoderm	Retina fiberes of optic nerve smooth muscles of irs
Surface ectoderm	Corneal & conjuctival epithelium lacrimal glands, Tarsal glands lens
Mesoderm	Extraoccular muscles, sclera, Iris
Neural crest	Orbit bones, ciliary muscle, sclera corneal stroma

BASIC HISTOLOGY

Four important tissue in our body are

A. Epithelia Tissue Disserve Tissue
B. Connective Tissue Muscle Tissue
C. Muscle Tissue
D. Nerve Tissue

Epithelia tissues

- Closely aggregated polyhendral cells with little intercellular substance
- Principle fn of Epithelial tissues
    - Covering & lining surfaces (skin)
    - Absorption (intestive)
    - Scretion (glends)
    - Sensory (Neuro epithelium)
    - Contactive (myoepithelial)

General characters of Epithelium

No interstitial space
Presence of a Basal lamina

Specialization of the cell surface

- Microvilli
- Cilia and flagella

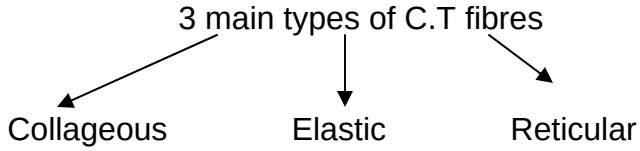
Connective Tissue

It is composed of fibres

C.T is characterised morphologically by the presence of several types of cells immensed in abudant intercellular material synthesised by these cells.

Richness intercellular material is one of the main characteristics of connective tissue

C.T is composed of fibres and matrix (amorphous inter cellular substane Cells , fibres, amorphous, substonces are embedded.



C.T makes up tendon, ligament and the aerolar tissue that fills the spaces B/w organs Bones & Cartilages are

Collageous fibres

Most numerous fibres in C.T

Collageous fibres are composed mainly of a sclero protein called collagen, whose principal acid is glycine, proline and hydroxyproline

Elastic fibres

Elastic fibres are easily distinguished from the collagenous fibres

B/C E.F are thinner and do not have logitudinal striations

Cells in connective tissue

- Fibroblasts
- Macrophages
- Mast cells
- Plasma cells
- Lenkocytes

Lamina Propria

The connective tissue layer of the mucous membrane

HUMAN EYE HISTOLOGY

The Conjunctiva

The conjunctiva is a thin transparent membrane which covers the inner surface of each eyelid (palpebral conjunctiva) and the anterior part of the sclera (ocular conjunctiva) At the free margin of the eyelid the palperbal conjunctiva becomes continuous with skin and at the margin of the cornea the ocular conjunctiva becomes continuous anterior epithelium of the cornea. When the eyelids are closed the conjunctiva forms a closed conjunctival sac. The line along which palpebral conjunctiva reflected onto the eyeball is called the conjunctival fornix superior or inferior. The ducts of the lacrinal gland open to the lateral part of the superior conjunctival fornix. Lacrimal fluid keeps the conjunctiva moist. Accessory lacrimal glands are present near the superior conjunctival fornix

Conjunctiva consists of an epithelial lining that rests on connective tissue over the eyelids. This connective tissue is highly vascular and contains much lymphoid tissue. It is much less vascular over the sclera.

The epithelium linning the palpebral conjunctiva is typically ***TWO*** layered. There a superficial layer of columnar cells, and a deeper layer of flattened cells. At the fornix, and over the sclera, the epithelium is ***THREE*** layered there being an additional layer of polygonal cells between the two layers mentioned above. The three layered epithelium changes to stratified squamous at the sclerocorneal junction, to form as 'Cornea'

Histology of Organ systems – Leeson & Paporo

According to Leeson and Paporo

The conjunctival epiothelium varies with location . It consists of a basal layer of cuboidal cells a surface layer of cone - or cylindrical shaped cells and, particularly over eyelids, one to 3 intermediate layers of polygonal cells

Scattered among the epithelial cells one some mucus - secreting globet cells.

At the edge off the cornea, the conjunctival epithelium becomes the stratified squamous type.

Anatomy of the Eye

The wall of the globe is composed of the dense elastic supporting membrane.

The anterior part of the membrane is transparent - The cornea

The reminder is opaque - The sclera

The anterior part of the sclera is covered by a mucous membrane the conjunctiva which is reflected from its surface onto the lids

Cornea consists of 5 layers

1. Epitherlium
2. Bowmans membrane
3. substantin prepa\ria (or) stroma (90%)
4. Descemet's membrane with its endothelium
5. Endothelium

Stroma

Composed fo regularly arranged thin fibrilis of collagen ensheathed by acid mucopoly saccharides and set in a ground substance.

Transparency of cornea is closely related to the regularity of the stornal components

The cornea is overlapped by sclera all round the periphery

The junction of 2 tissues is known as limbus [corneo scleral junction]

CORNEA

- highly supplied by Trigenial nerve
- No blood vessels
- It is nourished by conjutctived vessels at the periphery
- by the aqueous humour

Inner aspect of the sclera

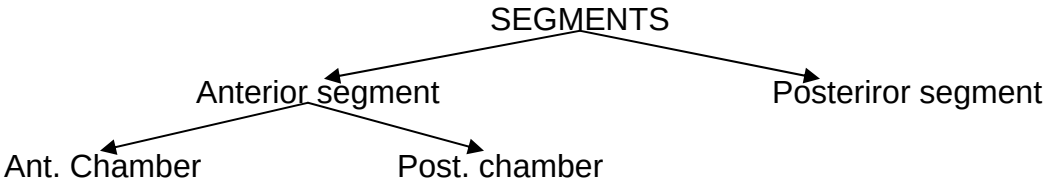
i) Highly vascular uveal tract which concerned cheifly with nutrition of the eye

ii) Nervours layer, - Retina

UVEAL TRACT

Consists 3 parts

i) Posteriorly - Cheroid and cillinary body
ii) Anteriorly - Iris
iii) Lens - Retinal the Iris



Anterior chamber

The space behind the cornea and infront of the pupil

- It is filled with Aq. humour
- Its peripheral recess is known as Angle of Anterior chamber

At this part of corneo scleral wall there is circular venous sinus, sometimes broken up into more than one luman called canal of schlemm, which is useful in drainage of Aqueous humour

At the periphery between the recess of Ac and canal of schlemm, there lies a loosely constructed mesh work of tissues, called ‘ Trabecular Meshwork’

The major outflow off A of A.Q.H appears to be a series of endothelia pores

Diagram – 1.13 PPg 17

IRIS

It is thinnest at its attachment the ciliary body

- composed of stroma, usually pigmented but largely unpigmented in blue rides
- The two muscles which control the movements of iris are

Shincter pupoillae	-	Circular bundle running renal the pupillary margin
Dilator pupillae	-	Arranged redialy mear the root of iris

Iris richly supplied by sensory nerve fibres of Vth
sphiacter pupillae motor nerve fibres, nerve supplied by oculomotor nerve fibre
Dilator pupillae motor nerve fibres are supplied by cervical sympathetic chain.

CILIARY BODY

The chief mass of ciliary body composed of unstriped muscle fibres, the ciliary muscle

The inner surface of the ciliary body is divided into 2 region

Ant. part	:	Pars plicata
Post. part	:	Pars plana

The ciliary body extends backwards as the serrata at point which the retina proper begins abruptly

RETINA

The innermost and sensitive layer of the eye /. The retina consists of number of layers, formed by 3 group of cells

- Visual cells
- Bipolar cells
- Ganglion cells

Rodes and cones, are the end organs of vision

At the posterior pole which is situated about 3mm to the temporal side of the optic disc, a specially differentiated spot is found in the retina the fovea centralis depression or pit, where only cones are present.

The fovea is the most sensitive part of the retina and is surrounded by the small area macula lutea.

The place where optic nerve emerges in the retinal layer is said to be optic disc

LENS

- Bioconvex mass of peculiarly differentiated epithelium
- Embryologically develops from surface ectodermi
- Central nucleus of the lens artists of the oldest cells and periphery consists of youngest cells

Coverings

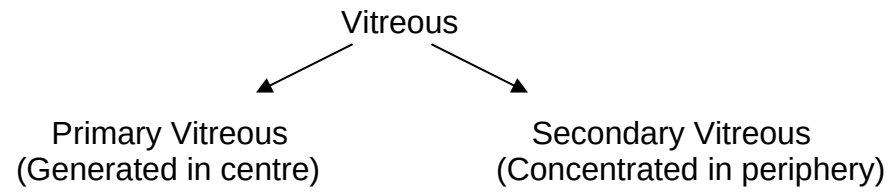
The lens is surrounded by a hy alime membrane, th elens capsule, which is thicker over the anterior than the posterior

Behind the lens is the large vitreous chamber containing the vitreous humour

This is a jelly like material chemically nature of an intert – gel containing a few cells and wandering Leucocytes

The vitreious body is attached anteriroly to the posterior lens surface by the ligament of wiegert.

Posteriorly the vitreous body is attached to margin of optic disc, macula and larger blood vessels



PHYSIOLOGY OF EYE

Formation of intraocular fluid

- Ultrafiltration
- diffusion
- secretion

The secretory process is powered by the metabolic activity of the cells o the ciliary epithelium and probably accounts for 95% of the total quantity of aqueous

It is rich in sodium & contains Ascorbic acid

The blood – Aqueous barrier, separates the blood from mixing with Aqueous humour

Contents

Consists of a dilute solution which is similar to that of plasma

However , the lactic acid is in Aqueous humour is sexless when compared to blood, due to the formation as an end - product of the metablism of lens

CIRCULATION

Necessary for both Metabolic purposes and to regulate the intraocular pressure

Ciliary region } - formation of Aq.humour
↓
Anterior Chamber - Via pupil
↓
Trabecular meshwork (Situated near by the angle)
↓
Schlemm channel
↓
Collector channel
↓
Aqueous veins
↓
Epischeral veins

Secondary Exit

Uveoscleral outflow
↓
Ciliary body
↓
Choroid tissue
↓
Suprachoroid tissue
↓
Episcleral tissue

Intraocular pressure

Prolonged changes in intraocular pressure are essentially caused by 2 factors

i) Alteration in formation of Aqueous
ii) Alteration in the resistance to outflow

which may result in glaucoma.

Factors determining prolonged changes in the intraocular pressure

i) Variations in hydrostatic pressure in capillaries
ii) An increase in permeability of the capillaries
iii) A change in the osmotic pressure of the blood
iv) Volumetric changes
v) A Blockage in the circulation of Aqueous

physiology of conjuctiva

It is thin mucous membrane lining the surface of the eye and eyelids and is divided into 2 portions, palpebral and bulbar

The folds uniting the palpebral and bulbar protions are the fornices.

The palperable cunjuctiva is said to commence at the anterior margin of the edge of the lid.

There are 2 layers of epithelium over the palpebral conjunctiva. The epithelium becomes gradually thicker from the fornics to the limbus forming a stratified non – keratinized epithelium near the corneal margin

Below the epithelium is a adenoid layer consisting of loose connective tissue containing Leucocytes. Below the Adenoid alayer there is dense fibrous layer passing insensibly into the underlying tissue either lid or sclera

The palpebral conjuctiva is firmly adherent to the tarsus, while the bulbar portion is freely movable over the sclera except close to the cornea

Lubricating Factors of conjuctiva

Tear film :

1. Mucinous layer - covering conjunctiva and cornea secreted by Globet cells (underneath layer).
2. Aqueous layer - secreted by lacrimal and accessory conjuctival glands
3. Lipid layers - meibomian glands limits evaporation of tears. (Superficial layer)

The triple layered sand which maintains a smooth occular surface and the oxygen dissoved in it from the atmosphere nourishes the corneal epithelium.

The tears also help to waste off debris and play a role in immunilogical protection of the ocular surface with the help of the enzyme lysozyme and secretory immunoglobulin. A

The "Conjuctival sac" is never free from organisms, but because of its relatively low temp. evaporation of lacrimal fluid and moderate blood supply, bacteria do not readily propagate themselves.

PATHOLOGY OF PTERYGIUM

A pterygium (Greek.pterygos meaning "wing") is a degenerative condition of subconjunctival tissue, which proliferates as fibro vascular granulation tissue to invade cornea, destroying superficial layers of stroma and Bowman's Membrane, the whole is covered by conjunctival epithelium.

It is typically raised, ranging from pearly white to pink in color, and triangular in shape with the apex, or head, on the cornea and characteristically presenting at the three and nine o' clock positions at the limbus.

Pterygium commonly grows from the nasal side of the sclera because the cornea acts as a lens for sunlight on the medial / nasal side but not on the lateral / temporal side, owing to the shadow cast by the nose. Pterygium is due to localized limbal stem cell deficiency and the scattered light incident at the temporal limbus or temporally is focused at the nasal limbus thus damaging the nasal basal limbal cells and explaining the increased preponderance of nasal pterygium.

Atypically located pterygia may imply other etiologies. According Goldman and Kaufman pterygium presenting in an oblique axis suggest an alternate diagnosis, such as Terrien's marginal degeneration(1).

Pseudopterygia are common inflammatory adherences of the conjunctiva to the cornea in eyes damaged by chemicals, heat or trauma. They can appear anywhere along the nasal or temporal limbus and progress onto the cornea at an oblique axis, bridging the limbus so that a probe can be passed underneath.

Pterygia can vary from small, atrophic quiescent lesions to large, aggressive, rapidly growing fibro vascular lesions that can distort the corneal topography and in advanced cases, they can obscure the optical center of the cornea

An advancing pterygium can produce marked changes in refractive state and curvature before entering optical zone which can cause visual impairment

SEX INCIDENCE

Pterygium most commonly affects the **senile** age group of **male** personalities whose occupations are mostly in

1. Hot weathers
2. Windy areas
3. Fishermen's
4. Sailors
5. Farmers and
6. Field workers (Constructors, Engineers)

THE DEGENERATE CELL

Although cell degeneration and death are normal at the end of the cells life span they may also be an indicator of injury.

Cell degeneration is significant to the cytopathologist because of its potential to be misinterpreted us malignancy.

During degeneration the nucleus may become swalloen and portions of the cytoplasm lost . This imparts the impression of an elevated nuclear to cytoplasmic ratio.

Also during degeneration the chromatin may begin to clump and become hyperchromatic (Karyorrhexis) and the nuclear membrane may become wrinkled

Condensation of the chromatin (Karyopykonosis) can be misinterpreted as ink – dot nuclei present in some cells from squamous cell carcinoma

An eg. of the cell degeneration that may be present in the probasal cells in vaginal atrophy

CAUSES OF PTERYGIUM

- Uv exposure
- Tropical areas and equatory areas
- Degenerative lesion
- blue and U.V rays
- Water man
- High light reflectivity, including from sand and H_2O
- Inflammation such as peripheral corneal ulceration
- Secondary to previous trauma

SIGNS OF PTERYGIUM (IN CHRONOLOGICAL ORDER)

1. A small grey corneal capacity develops near the nasal limbus,
2. The conjunctiva overgrews the opacity and progressively encroaches onto the cornea in a triangular fashion.
3. A deposit of iron (stocker line) may be seen in the corneal epithelium anterior to the advancing head of the pterygium

PTERYGIUM CAN BE CLASSIFIED INTO FIVE GROUPS:

1. Actively growing pterygium

2. Slowly growing pterygium
3. Stationary pterygium
4. Fleshy pterygium
5. Atrophic pterygium

GRADING OF PTERYGIUM:

Grade I	:	Crossing Limbus
Grade II	:	Midway between limbus and pupil
Grade III	:	Reaching upto pupillary margin
Grade IV	:	Crossing pupillary margin

Complications of pterygium

1. Distortion or reduction of central vision due to involvement of visual axis or induced astigmatism and disruption of the precorneal tear film.
2. Redness
3. Chronic Irritation
4. Chronic scarring of conjunctiva and cornea
5. Extensive involvement of the extra ocular muscles may restrict ocular motility and contribute to diplopia. Scarring of the medial rectus muscle is most common cause of diplopia in patients with pterygium
6. In-patients with significantly elevated pterygia focal drying and subsequent thining of the adjacent cornea can occur on rare occasion.

Pathogenesis

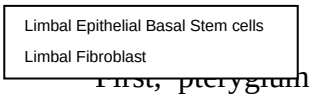
Numerous theories have been postulated for the pathogenesis of pterygia, including choline deficiency [12], inflammation [13,14,15,16] degeneration [17,18,19,20] tissue angiogenesis factor[21]; changes in the elastic tissue and immune mechanisms.[22]

One theory is that tear film abnormalities cause drying of the cornea and conjunctiva, which in turn predispose to new growths [23]. This theory has been supported

by studies of geographical distribution, i.e., pterygia appear to occur more frequently in hot, dry climates [24,25,26].

Ultraviolet irradiation been suggested as being a major environmental disposing factor in primary pterygia.[21,27,28,29] Ultraviolet light [30] causes mutations in both UV – sensitive TP53 tumor suppression genes in the parental limbal basal cells and the elastin gene of the fibroblasts in the limbal epithelium[31], mutations in other genes are progressively acquired. This allows the multistep [32] development of pterygium and limbal tumor cells from P53 expressing limbal epithelial cells. These cells overlie pinguecula of the altered fibroblasts that make abnormal elastotic material and express various Matrix Metallo Proteins (MMPs).

Mutations in the TP53 gene family in the parental limbal basal cells also result in the overproduction of TGF-β by the pterygium cells [33,34]. Excess TGF - β secretion by the pterygium cells can explain tissue changes and MMP expressions seen in pterygia[30,33-41]



First, pterygium cells (altered limbal basal epithelial cells) produce elevated MMP -2, MMP – 9, MT1- MMP, and MT2 – MMP, causing dissolution of hemidesmosome attachments. Initially, the pterygium cells migrate centrifugally in all directions onto the adjacent and joined corneal, limbal and conjunctival basement membranes. Because of the TGF - β production of these cells, they have a reduced number of cell layers [33,34,35,36,37] and no tumor mass is seen, resulting in an invisible tumor [31].

Later, after an entire group of altered limbal basal cells develop and all hemidesmosomes are dissolved under these cells, they migrate as a suppressed growth onto the cornea followed by conjunctival epithelium, expressing all 6 MMPs and contributing to the dissolution of Bowman's layer. In addition, TGF- β synthesized by the pterygium cells causes increased monocytes and capillaries within the epithelial and stromal layers [31,33-41,42] .

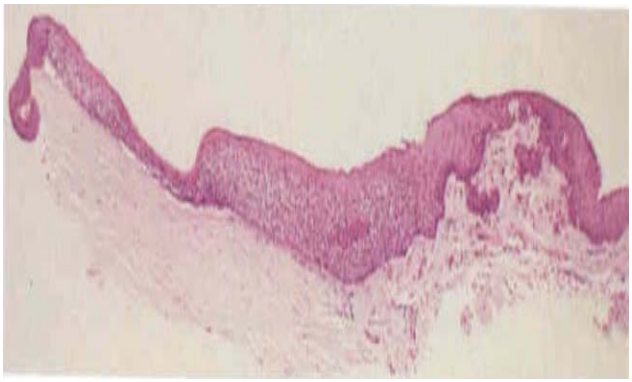
Second, a group of normal fibroblasts gather under the invading limbus epithelium next to the dissolved edges of Bowman's layer and are activated by a TGF-β bFGF pathway [33] to produce excess MMP -1 and MMP-3 as they help a dissolve Bowman's layer.

Some of these cytokine activated fibroblasts migrate anterior to the leading edges of pterygia between Bowman's layer and the basement membrane of the corneal basal cells to form little islands of fibroblasts that make MMP -1 and locally help to dissolve Bowman's layer [33].

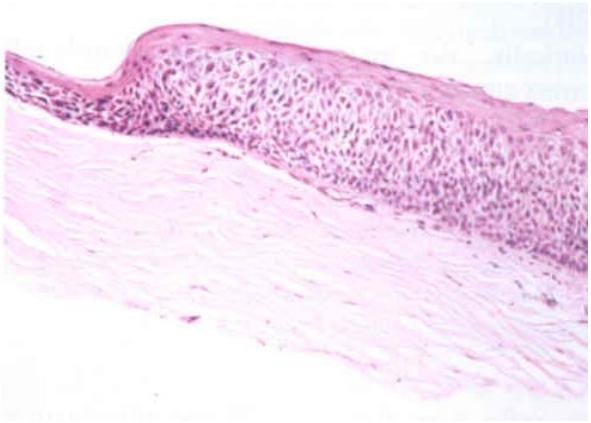
Histopathology:

The histopathologic appearance of pterygium is characterized by 3 basic elements

First element is the epithelial covering of atrophic conjunctiva which overlies a second element, which is a bulky mass of thickened hypertrophied, degenerated connective tissue which has abnormal collagen. The third element is blood vessels, which are dispersed among the hypertrophied collagen fibers. Histopathology of the abnormal collagen in the area of elastotic degeneration shows basophilia with hemotoxylin and eosin stain.

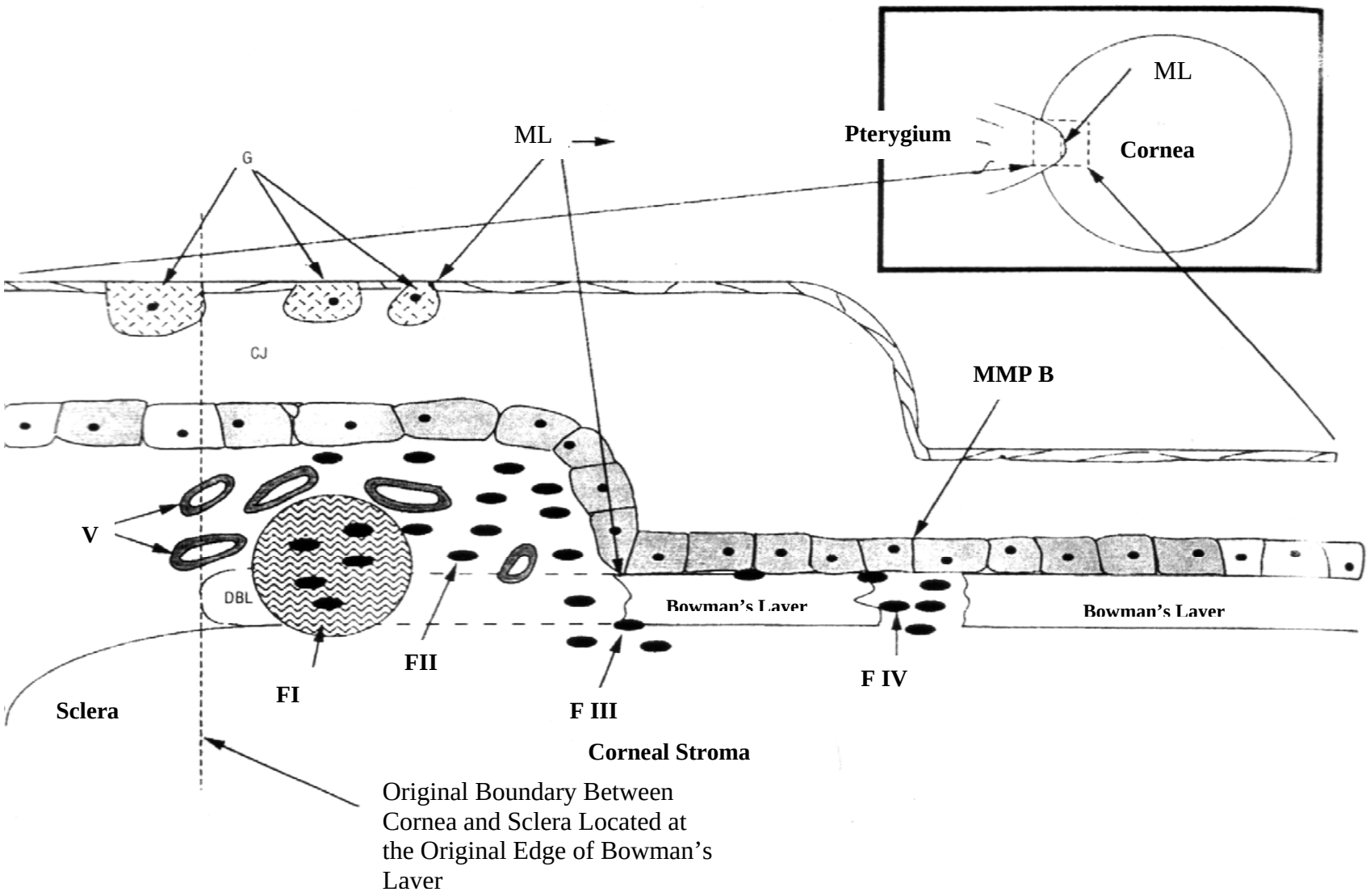


Basophilic degeneration of the conjunctival substania propria



Invasion of the cornea

On the corneal side immediately in front of the head of the pterygium, the fibroblasts penetrates the cornea between Bowman's layer and the basement membrane of the overlying epithelium and these fibroblasts account for the gray zone or cap and this is thought to prepare a path for fibro vascular tissue to penetrate the cornea.



Pterygia pathogenesis.Corneal invasion by matrix metalloproteinase (MMP) expressing altered limbal epithelial cells and activation of fibroblasts. CJ indicates cojuctiva with goblet cells infiltrated by pterygium cells :DBL, dissolved Bowman's layer; FI.fibroblasts making abnormal elastotic material (the pinguecula tumor) : FII, fibroblasts making collagen and posssibly elastic materials; FIII, fibroblasts making MMP-1 at dissolved edge of Bowman's layer . FIV. fibroblasts (fibroblast islands) making MMP-1 at dissolved edges of Bowman's layer; G, goblet cells; ML, migrating limbus; MMP B, MMP expressing altered limbal basal epithelial cells invading cornea and conjunctival epithelium; and V,l blood vessels (angiogeneisis)

DIFFERENTIAL DIAGNOSIS OF PTERYGIUM

1. PINGUECULA

According to Harshmohan

Pingueacla is a degenerative condition of the collagen off the bulbar conjuctiva

Clinically the condition appears as raised yellowish on the

i) interpalpebral
ii) Bulbar conjunctiva of both eyes

Histologically

Pingueculae

- elevated, white to yellow in colour horizontally oriented
- less transparent then normal conjunctiva
- current information however suggest that pinguecula does not progress to pherygium and that the two are distinct disorders

Basophilic degeneration of the sub – epithelial collagen of conjuctiva

The overlying epithelium shro acarthesin, hyperrkeratosis (or) dyskeratosis

Mututions of p53 gene

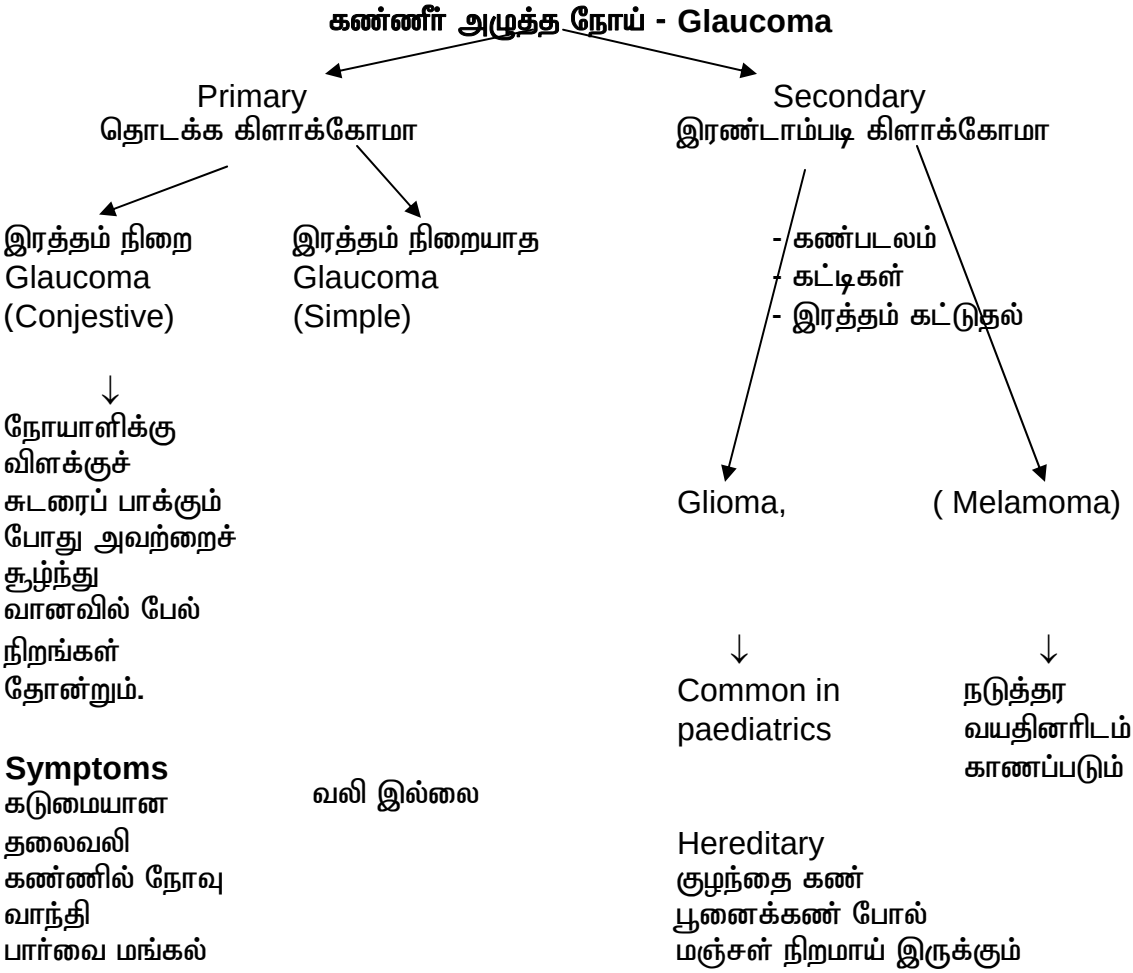
Conjunctival intraepithelial Neoplasin may be difficult to differenciate from keratinization of pingnecula

Degenerative conditions increase in prevalence with increasing age

- Due to chronic exposure to UV rays
- As a result of past inflammation
- of long term toxic effects
- of environment expose
- or by ageing itself

2. GLAUCOMA

கண்ணீர் அழுத்த நோய் - Glaucoma



3. TUMOURS OF THE CONJUNCTIVA

I. Conjunctival lymphoid tumours

Lymphoid tumours of the conjunctiva appear as salmon – celored mass within the fornix or on the surface of the globe

II. Squamous papilloma

Squamous papilloma arise from the conjunctiva epithelium in diverse clinical settings. In children they are often bilateral and recur after excision .

In adults papillomas are usually solitary and unilateral.

III. Dysplasia and intraepithelia Neoplasia

IV. Squamous cell carcinoma

Conjuctival S.C.C usually grows as a papillary exophytic mass. Cellular atypia occurs throughout the entire epithelial thickness, and neoplastic cells extend into the underlying stroma either individually or in nests

V. Spindle cell CA

Rarely arises in conjunctiva but there is aggressive clinical courses than the usual well – differentiated conjunctival squamous carcinoma

Clinical features of conjuctival disorders

1. Redness
2. Stickiness
3. Foreign body sensation
4. Grittiness
5. Lacrimation
6. Photophosia
7. Burning sensation
8. Dryness of eye.

9. Vision is generally normal but blurring occur.

10. Hyperamia

10. a) Acute mainly due to foreign body in conjunctival sac

10 .b) Chronic Concretions, would cause acute and recurrent

Dusty, ill-ventilated rooms or exposure to heat or dryness

10. c) Non conjuctival cause
    - Excessive Aleocnol take
    - High fever

11 . Conjuctival discharge

Excess secretion in conjuctival disorders and is prominent feature in conjunctivitis

11. a) Mucoid / Watery discharge - viral conjuctivitis
11. b) Mucoparent / Purlent - Bacterial
11. c) Ropy / Stringy mucoid discharge - Allegic

12.Conjuctival Inflammatory reaction

12. a) Follicles
12. b) Papillae
12. c) Gramulomas

AIM AND OBJECTIVES

Eye diseases are increased in alarming rate now-a-days due to increased incidence of patients with eye ailments, both due to premature ageing, life style modifications global lworking, and recent industralisation , over usage of computers and electronic devices etc.,

Among 96 Siddha eye disease, . Most of them are premature ageing related disease .

The principle Aim is to evaluate the pathology of 'Naga Padalam' and to collected & review the view and ideas of the siddhars about this disease

a) Naga padalam is common in India and world wide distributed more prone in Equatorial regions
b) Common in all age groups but have higher incidence in aged ones
c) Uncontrolled peristence of disease worsen the vision and corneal astigmatism is more prove

Having these features in mind . The following objectives are enumerated

Objectives

Survey of siddha literature

a) Siddha physiology
b) Collection and detailed study of various eye books, regarding nagapadalam

Also dealing with definition aetiology, classfication, signs and symptoms of disease, aggrevating factors fate of the disease, line of treatment and diet interaction

- To expose the efficacy of siddhar diagnostic and surgical principle
- To list out incidence of the disease, with reference to Age, Sex, location, climates (paruvakaalam) the land in which the patient exist
- To know and corelate the features of Naga padam with that of modern medicines
- Diagnostic methods of medicine
- Importance of eye is an diagnostic tool
- To list out the relation of the disease with occupation , and his exposure to radiation
- Preventive methods and controlling procedures of eye disease

Sense organs and their corresponding pancha boothas

1.Ear - Ether
2. Skin - Air
3. Eye - Fire
4. Mouth - Water
5. Nose - Soil

Among the 5 sense organs, Eye is considered to be the best, by the ancient saying

‘கண்ணிற் சிறந்த உறுப்பு இல்லை‘‘

‘Eye’ is being compared to the ones ‘intelligence’

Factors which are responsible for eye disease in Intra uterine life

1. Altered food habits
2. Excessive drug intake
3. Excessive thirst and hunger
4. Intake of mangoes
5. Parasitic infections in pregnant mother

These are mentioned by Agastiyar . In his text Agathiyar Nayana vithi as follows

பாட்டு

114/ Lygiene

Also,

- Walking for a long distance
- walking without chappals
- distrubed sleep
- Visualizing lightining , fire
- Consuming viegar dure drug Intercated periods
- Living in Excessive wind areas
- Lifing heavy weights in head
- வெற்றிலை மற்றும் பாக்குகளை வாயில் அடக்கி கொள்ளுதல்

Concepts of Thirumoolar

- Intake of Arsenic products
- UTI
- STD

- Inhaling the corrosive drugs and acids
- Unvoiding the urine at appropriate time
- Excessive dehydration due to vomitting , diarrhoea

Concepts of Nagamunivar

Poem – 115
- Chicken pox
- Veneral disease
- UTI, STD
- Excessive heat

According to Thirumoolar
Fate of vision

35 to 45 years	-	புகைந்து நிற்கும் (Cloudiness of vision) or Blurring
45 to 57 years	-	Haziness of vision
100 years	-	Total Blindness

Song 115

As per the 'humans milestone' the vision will be nil during the age of 100

To get protected from the ailments such as blurring of vision, loss of vision, are must follow the below procedures

1. Brushing with stems of Banayan, Jack fruit tree (or) Accacia
2. Santhira Tharisanam
   (Instill 3 drops of pure water and then , rub gently the eyelids and do the santhira tharisamam by folding hand as by "Palagani")
3. Anjanam once in 3 days
4. Weekly Twice headbath is is must
5. Pala kirambu Pakkuva வெண்ணெய் is good
6. apply ghee in foot while going to bed Wash with chill H_2O in easily morning and apply santalum paste, to the foot

These procedure particularly have cooling effect in both eyes

Dietary regimen to prevent eye diseases

1. Intake of Pannai keerai , சிறு Keerai , பொன்னாங்கன்னிக் Keerai is good

2. Add ghee twice a day song 117.

‘தைலம் தேய்கும் விதி

Applying oil in eyes will cure ear diseases
Applying oil in foots will cure eye diseases
also
Applying oil in centre off head will cure all ailments

14. Reflexes விழிநீர்

விழியினில் நீர டக்கில் விதமான இறுத்து ரோகம்
வழிபட பீந சங்கள் வந்திடு நேத்ர ரோகம்
அழகிடுஞ் சிரசிழல் ரோக மதனுடன் வாதங் கூடில்
படுது பல் லீக்கை குன்மம் பற்றிடுங்

பலவகை கொடிய நோய்கள், பீநசம், கண்ணோய். தலைவலி, குன்மம்

நித்திரை

Song 279

- தலைகணம்
- கண்ணோய்
- காதுகேளாமை
- Slurring of speech

கண் மருத்துவம்

"உலகத் தமிழ் ஆராய்ச்சி நிறுவனம்"

"தொல்காப்பியர் கூறும் கண்

தொல்காப்பியர் கண் என்றும் சொல்லை பலவிடங்களிலும் குறிக்க காணலாம். எழுத்ததிகாரத்தில் மாத்திரை அளவு கூறுமிடத்து

கண்ணிமை நொடியென அவவே மாத்திரை

நுண்ணிதின் உணர்ந்தோர் கண்டவாறே

எனக் கண்ணிமைத்திலின் நுண்மை அளவினை உரைப்பர்.

பெண்களின் கண்கள்

பெண்களின் கண்களை நெய்தல் , குவளை போன்ற பூக்களுடன் ஒப்பிடுவர்.

தலைவியின் முகமும் கண்ணும் , தாமரையும் குவளையுமாக பிணந்து நிற்கும் அழகு காட்சியை அகநானூறு காட்டும்

"கண்ணெனக் கருவிளை மலர" என்றும் பாடலடியில் கருவிளை அல்லது கருங்களக்கணம் பூ மகளிர் கண் போல் மலரும் என விளக்கக் காணலாம்

வெளியே புலப்படக்கூடிய பகுதிகள்

இவற்றை புற மண்டலம் எனக் கூறுவர் " இவை 5 வகைப்படும்"

இமை மண்டலம்:

அதாவது இமை மயிர் வரிசைகள் கண்ணுக்குள் வியர்வை, தூசி, முதலியவை விழாமல் கனப்பாற்றுகின்றன.

குவளை மண்டலம்:

மேல் இமை, கீழ் இமை சேர்ந்து இரெப்பை எனப்படும்

மேல் இமைக்கு - இமை என்றும்
கீழ் இமைக்கு - குவளை என்றும்

வெள்ளை மண்டலம்

வெள்விழி

கருமை மண்டலம்

- கருவிழி
- இது மிகவும் உறுதியாக இருப்பதால் கண்களை அடிபடுதலினின்று காப்பாற்றுகிறது
- பார்வை மண்டலம்

  சோதி என்றும் தாரை என்று கூறுவர் கருவிழியில் ஏழில் 1 பங்கு ஒளிமயமான அலோசக பித்தத்தின் சத்துவே பார்வைக்கு ஆதாரமாகிறது.

Related Terms

1. கோழைப்படலம் - Conjunctiva
2. வெள்விழி@கடின் - Sclera
3. கருவிழி@சிருங்கை - Cornea
4. @கிருஷ்ணபடலம்-
   @பாவை
   @தாரை
   @சோதி
   } Iris
5. பரிதிகம் - cilinary body
6. தரிசியம் - Retina
7. இயவம் - Lens
8. வனம் - Aqueous Humour
9. படிகம் - Vitreous humour

முதல் படலம் - கடின மற்றும் சிருங்கையினால் ஆன இரண்டாவது படலம் - தரணிசம் , வருணி ,? பரிதிகம் என்ற சவ்வினால் ஆனது

மூன்றாவது படலம் - தரிசியம்

கண்நோய் வருவதற்கான அறிகுறி

1. கண் கலிக்கம்
2. கண் வீக்கம்
3. பீளை சாரல்
4. கனத்தல்
5. அனத்தல்
6. வலி in கண்
7. கண்களில் சிவப்பு
8. இரப்பைகளில் குத்துவலி
9. இமைகளினடியில் உருத்தல்
10. கண் கூச்சம்
11. பார்வை குறைவு

ஐம்பூத சேர்க்கை

கண்ணிலுள்ள சந்திகள்

கண்ணிலுள்ள படலங்கள் (திரைகள்)

இரப்பையில் - 2 படலம்
கேந்திர கோலத்தில் - 4 படலம்

1. முதல் படலத்தில் தீரும் ஆலோசகப் பித்தத்தோடு செல்லும் இரத்த குழாய்களும் அமைந்திருக்கின்றன
2. பெரும்பாலும் தன்ச உள்ளது
3. பெரும்பாலும் கொழுப்பு
4. இது எலும்பினால் ஆனது

நல்ல கண்ணின் இயல்பு

நல்ல கண்ணின் அளவுகள்

பங்கு விகிதாச்சாரம்0

வயதும் பார்வை தறனும்

நோய் வரும் வழி

நோய்களின் எண்ணிக்கையும் வரும் இடங்களும்

சோதி @ பாவையில் = 27

கருப்பு விழியில் = 10

முக்குற்ற அளவாக நோய்களின் எண்ணிக்கை

வளி - 45
அழல் - 31
கப - 20
மொத்தம் - 96

மருத்துவம் செய்யக்கூடாத நாட்கள்

அறுசுவையின் இயல்பு

கண் நோய் அணுகாமல் இருக்க

இன்ன காலத்தில் இன்னது செய்ய நன்று என்பது

மருந்திடும்நேரம் அறுவை செய்தலுக்குரிய நேரம்

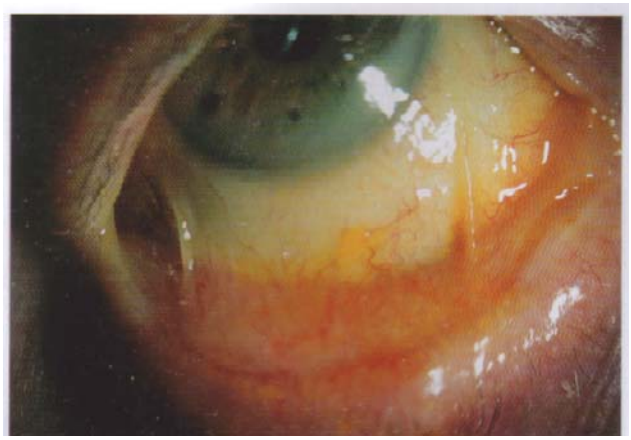
கண் ஒளி பெருக்க பல் துலக்கும் விதி

நிலவை பார்த்தல்

கண்ணோய் வரும் காரணம்.

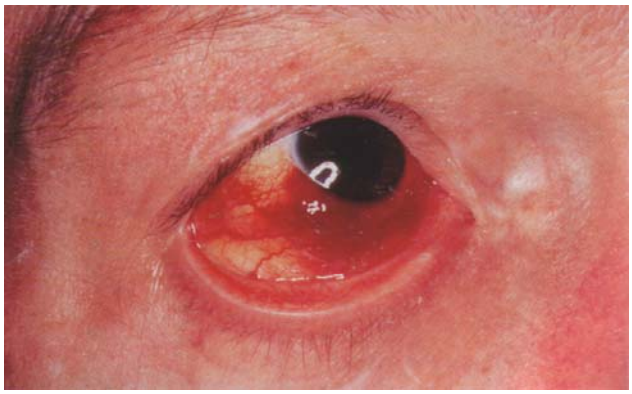
CONJUNCTIVA IN VARIOUS SYSTEMIC DISEASE

Conjunctivitis in Steven Johnson Syndrome



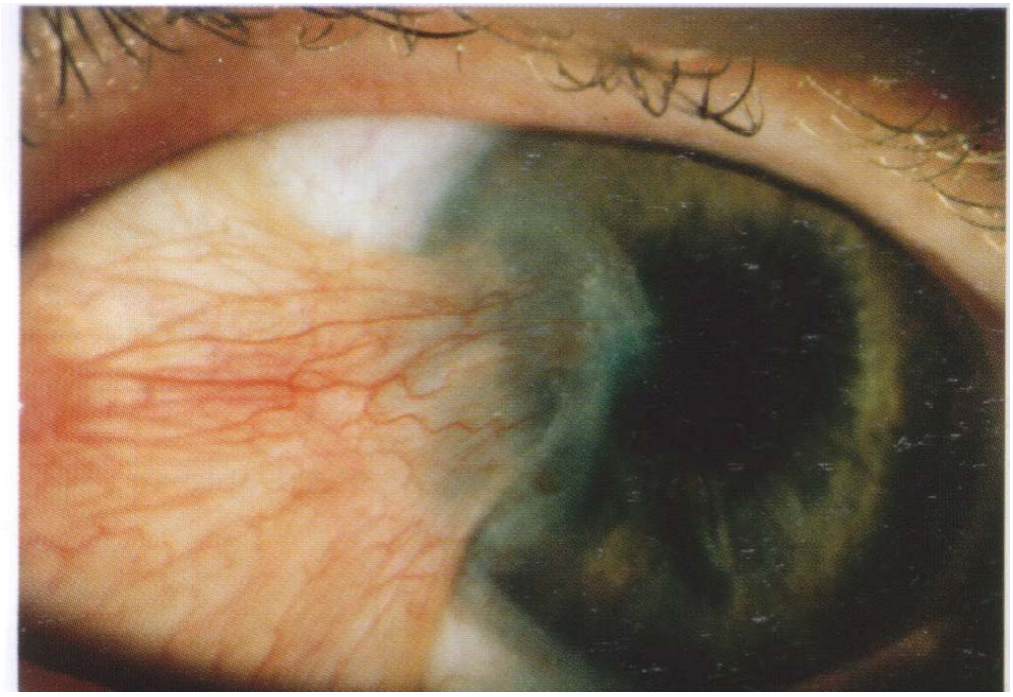
Symblepharon in Cicatrical Phemphigoid

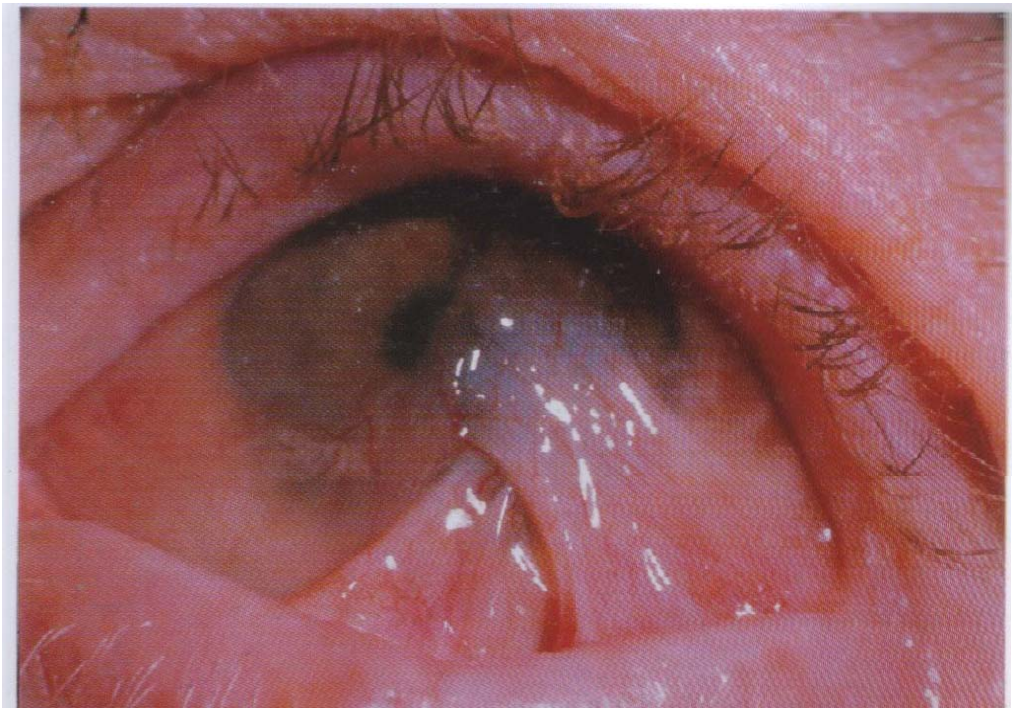
Blue Sclera



Conjunctival Kaposi Sarcoma

ADVANCED PTERYGIUM





PSEUDO PTERYGIUM